Setting the standard in automotive testing

OXTS Inertial+GNSS

RT4000 v2

GNSS/INS for high dynamic vehicle testing

The RT4000 family of inertial navigation systems from Oxford Technical Solutions combine the best of GNSS positioning technology with high-grade gyros and accelerometers to deliver superior performance in a single enclosure.

>> Key features

- High speed GPS for dynamic conditions
- 250 Hz data output rate
- Up to 1 cm position accuracy
- 0.15° slip angle
- Multiple slip points
- High accuracy orientation
- Tightly coupled GNSS/INS
- Optional CAN acquisition
- OxTS gx/ix performance technology
- Driving robot interface
- Single or dual antenna
- GLONASS options
- Smooth, stable outputs
- Wheel speed input
- ITAR free
- ISO 17025 calibration available
- Software suite included

>> Applications

- Vehicle dynamics analysis
- Slip angle measurement
- ESC testing
- NHTSA regulation testing
- ADAS validation
- Tyre testing
- Electronic power steering tests
- Driving robot control
- And more...

>> Experts in GNSS and inertial technology

Advanced algorithms in the RT4000 seamlessly blend the inertial and GNSS data to provide smooth, robust, real-time outputs. Even in poor GNSS environments the RT4000 remains accurate with low latency outputs of position, velocity, orientation and more. Now with OxTS gx/ix technology, we have improved position, velocity and orientation measurements making the performance even better than ever before.

>> One box, turnkey solution

Combining GNSS receivers, an inertial measurement unit, internal storage and a real-time on-board processor all in one compact box, the RT4000 delivers everything you need for a complete dynamics solution. The optional CAN acquisition upgrade eliminates the need for 3rd party acquisition systems making the RT4000 a true one-box solution for vehicle test engineers. All cables and antennas are included, and the RT4000 comes with an extensive software suite so you can post-process and plot your data at no additional cost.

>> Simple, flexible, reliable

With secure mounting options available and simple software wizards, installing and using the RT4000 is quick and easy. Data can be output at up to 250 Hz over Ethernet, serial or CAN in a range of formats. Packed with features to improve performance and functionality, including wheel speed input, driving robot interface, and heading lock, the RT4000 ensures reliable performance in all situations.

>> Worldwide standard

OxTS inertial navigation systems are recognised as a symbol of precision and performance around the globe. With a large number of systems in operation wordwide, you can be sure of the quality to expect from the RT4000. Now with ISO 17025 calibration available, our inertial measurements are traceable to national standards.

>> RT4000 v2 models

Standard	RT4100 v2	RT4102 v2	RT4002 v2	RT4003 v2
GLONASS enabled	RT4100G v2	RT4102G v2	RT4002G v2	RT4003G v2

>> Performance[1]

Positioning	L1	L1	L1, L2	L1, L2
Position accuracy (CEP)				
SPS	1.8 m	1.8 m	1.5 m	1.5 m
SBAS	0.6 m	0.6 m	0.6 m	0.6 m
DGPS	0.4 m	0.4 m	0.4 m	0.4 m
RTK			0.01 m	0.01 m
Velocity accuracy (RMS)	0.1 km/h	0.1 km/h	0.05 km/h	0.05 km/h
Roll/pitch accuracy (1σ)	0.05°	0.05°	0.03°	0.03°
Heading accuracy (1σ)[2]	0.1°	0.1°	0.1°	0.1°
Track angle accuracy (1σ)[3]	0.1°	0.1°	0.07°	0.07°
Slip angle accuracy (1σ)[4]	0.2°	0.2°	0.15°	0.15°
Dual antenna	x	✓	x	✓

>> Hardware

Dimensions	234 x 120 x 80 mm
Mass	2.2 kg (single antenna) 2.4 kg (dual antenna)
Input voltage	10–25 V dc
Power consumption	15 W (single antenna) 20 W (dual antenna)
Operating temperature	–10° to 50° C
Environmental protection	IP65
Vibration	0.1 g^2/Hz, 5–500 Hz
Shock survival	100 g, 11 ms
Internal storage	2 GB

>> Sensors

Type	Accelerometers	Gyros
Technology	Servo	MEMS
Range	10 g	100°/s
Optional	30 g	300°/s
Bias stability	2 µg	2°/hr
Linearity	0.01%	0.05%[5]
Scale factor	0.1%	0.1%
Random walk	0.005 m/s/√hr	0.2°/√hr
Axis alignment	<0.05°	<0.05°

[1] Valid for open sky conditions.
[2] Dual antenna heading valid for 2 m antenna separation. Wider separation will improve accuracy. Supports up to 5 m separation.
[3,4] At 50 km/h.
[5] With SuperCAL adjustment.

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