



RT500 v1

Low cost INS for vehicle dynamics testing

The RT500 combines a high-grade IMU with cost-effective GNSS technology to deliver a vehicle dynamics solution on a budget.

Applications

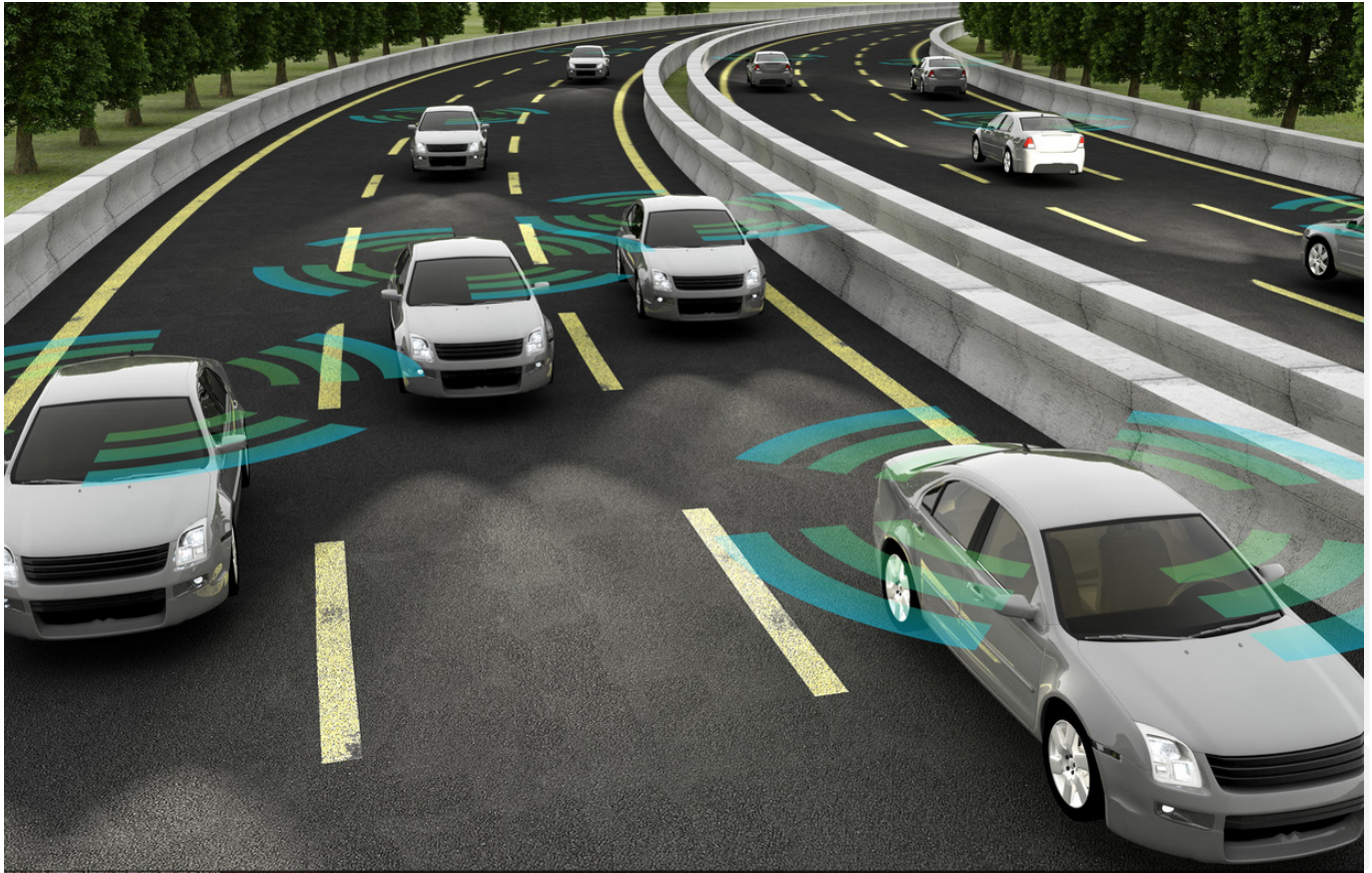
- / Vehicle dynamics analysis
- / Ride and handling testing
- / Coast-down testing
- / Acceleration testing
- / Brake testing

Our entry-level INS for slip angle measurement and brake testing

The RT500 v1 is the INS of choice for automotive companies who want to capture consistent, reliable measurements for high dynamics testing, where RTK is not required. e.g. coastdown testing, brake testing, and slip angle measurement.

Its predecessor, the RT2500, earned itself industry-wide recognition as the hero INS solution for low dynamics testing.

Now, with the RT500 v1, the solution replacing the RT2500, the industry's trusted INS for low dynamics testing has been designed to offer even greater connectivity, mobility and efficiency. And it does so while maintaining the well-revered precision accuracy and affordable price of the RT2500.



Benefits

- / Capturing vehicle dynamics data with high accuracy
- / Internal memory allows you to capture days of data in one go
- / Up to 250Hz output even during GNSS dropouts
- / Post-processing software included to improve on real-time performance

Firmware applications

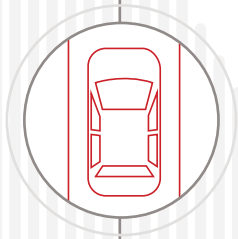
- / Multiple slip points – INS computes slip angle from up to eight user configured points on the vehicle
- / Local coordinates – Data is displaced from an origin on a local coordinates grid
- / Surface tilt – Roll and pitch are compared to an inclined surface
- / Acceleration filters – Applied to reduce unwanted noise on angular and acceleration measurements

Why choose the RT500?



Precision, greater accuracy and efficiency

- / CAN 2.0 and CAN-FD configuration and interface
- / 0.1 km/h velocity accuracy
- / 0.05° pitch/roll accuracy
- / 0.05° slip angle accuracy
- / 250 Hz maximum output rate
- / Same trusted performance as the RT2500
- / Dual antenna multi-frequency GNSS receiver.



Streamlining and simplifying vehicle dynamics testing

- / Position, time, velocity, acceleration, heading pitch and roll in one data stream.
- / Combined IMU/GNSS data ensures you don't lose data when you drive in poor GNSS environments.
- / Data output at low latency in real-time to reduce the need for post-processing.



The complete, compliant, affordable solution

- / One of the most economically priced high dynamics test solutions on the market.
- / Meets all needs for vehicle dynamics testing, for both current and future ISO compliance requirements.

Features

- / 0.1 km/h velocity accuracy
- / 0.05° pitch/roll accuracy
- / 0.05° slip angle accuracy
- / Dual antenna
- / GPS + GLONASS
- / Tightly coupled GNSS/INS

Options

- / 250 Hz output
- / CAN acquisition
- / External GNSS interface
- / ISO 17025 calibrated

Performance (dual antenna)

| | |
|-------------------------|----------------------|
| Positioning | GPS L1 GLONASS L1 |
| Position accuracy (CEP) | |
| SPS | 2.0 m |
| SBAS | 1.0 m |
| DGPS | 0.5 m |
| Velocity accuracy (RMS) | 0.1 km/h |
| Roll/pitch accuracy | 0.05° |
| Heading accuracy | 0.1° |
| Track angle accuracy | 0.15° |
| Slip angle accuracy | 0.25° |

Hardware

| | |
|--------------------------|----------------------------------|
| 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 |
| Mass | 1.4 kg |
| Dimensions | 184 x 120 x 71 mm |
| Power consumption | 15 W |
| Input voltage | 10-50 V dc |

Optional Accessories

RT-Strut

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

RT-UPS

Uninterruptible power supply for worry-free testing

Sensors

| | | |
|----------------|----------------|--------------------|
| Type | Accelerometers | Gyros |
| Technology | MEMS | MEMS |
| Range | 10 g | 100°/s |
| Optional | 30 g | 300°/s |
| Bias stability | 5 µg | 3°/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° |

Interfaces

| | |
|----------------|---|
| Ethernet x4 | |
| CAN 2.0/CAN-FD | |
| Serial x 3 | |
| Digital I/O | Wheel speed input (quadrature), two configurable triggers |
| NTRIP Client | |

Wireless LAN

| | |
|--------------------|--|
| Radio | IEEE 802.11 a/b/g/n/ac/d/h/j |
| Data Rates | 5GHz: 802.11a/n/ac - Up to 433 Mbps 2.4GHz: 802.11b/g/n - Up to 150 Mbps |
| Operating Channels | Channel 1-14 (2412 - 2484 MHz) Channel 36-165 (4900 - 5845 MHz) Channel Bandwidth: 20, 40, 80 MHz ⁶ |



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Setting the standard
in automotive testing

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