

RT-Range

Lane Position and
Vehicle-to-vehicle
Measurement

Features – Vehicle-to-vehicle

- <3cm Accuracy
- Real-Time Output on CAN bus
- Target CAN in Hunter Vehicle
- Long, 200m Range
- 2km Range Option
- Remote Measurement Points
- Range to Fixed Point
- Range to Target
- Direction to Target
- Relative Speed of Target
- Many more measurements

Features – Lane Position

- Real-Time Output on CAN bus
- Lane Position Measurement
- Lane Lateral Velocity
- Three Measurement Points
- Road Survey Tools

Features – Common

- Low Latency (<10ms)
- High Bandwidth
- 100Hz Update Rate
- Quick Configuration
- Based on RT3000 Products
- Real-Time PC Display
- Safe on Public Highway
- Full access to RT3000 Outputs

Applications

- Adaptive Cruise Testing
- Lane Departure Testing
- Advanced Technology

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RT-Range for ADAS testing



The RT-Range is used for two functions: accurate (3cm) measurement of the relative motion between two vehicles and precise (2cm) measurement of lane position. All measurements are online, in real-time and output on a CAN bus, including the Target vehicle measurements being relayed in the Hunter vehicle's CAN bus.

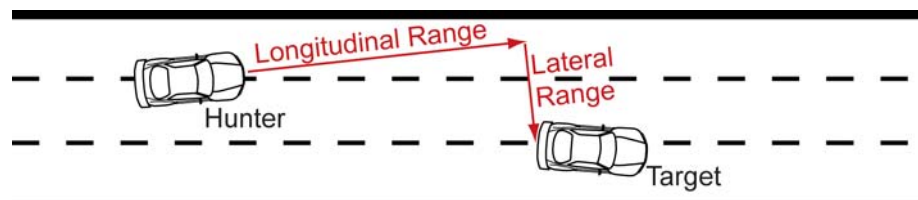
Verifying the accuracy of radar and other sensors can be performed subjectively. The RT-Range is a precision tool for evaluating these measurements numerically and objectively. Typical applications include adaptive cruise control, accident avoidance and other advanced technologies.

Lane departure warning systems are being developed and fitted to vehicles now. The RT-Range can be used to verify their accuracy and to increase the understanding of lane positioning.

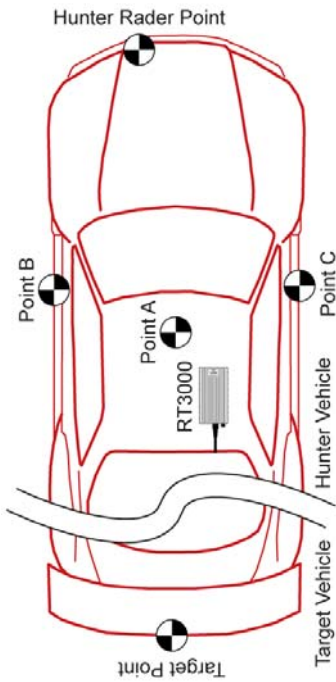
Vehicle-to-vehicle Measurements

Vehicle-to-vehicle measurements are performed by measuring the position of the two vehicles and then transmitting the position of the Target to the Hunter using Wireless LAN radio. This is fast, has very low delay and can be used worldwide, license-free. Any additional delays or lost packets from the Target are extrapolated with minimal loss in precision. Wireless LAN can operate over 200m in noise-free environments.

The position of the radar (or sensor) on the Hunter can be defined at any location. Similarly, the measurement point on the Target can be defined at any point. There is no need to mount the RT3000 products at special locations in the vehicle. These measurement points are independent of the Lane Position measurement points.



Five Separate Measurement Points



Fast Installation using RT-Strut



Survey Trolley



Lane Position Measurements

There are three steps to measuring Lane Position. First the lane markings are surveyed; then up to 8 lane markings are combined into a map; finally the actual vehicle position is compared to the map. This leads to exceptionally accurate and reliable Lane Position measurements. All the tools to survey the lane markings and build the map are provided.

The measurements from three points in the vehicle are available simultaneously. This allows the system to test several sensors at the same time. The RT-Range automatically selects the correct lines in the map and measures to them.

The RT-Range also computes the reference distance along the map so that graphs can easily be overlaid.

Fast Installation

The RT-Range can be installed quickly into a vehicle. Training is simple and the system is very easy to use. Results can be obtained within hours of receiving the equipment.

On-site training can be provided to help engineers get to work quickly.

Accurate Specifications

The measurements in the RT-Range are based on proven RT3000 products. The specifications for the RT3000 products can be found in the RT3000 User Manual. Extensive testing has been performed to verify the accuracy of these measurements, contact Oxford Technical Solutions for further details.

Table 1. Technical Specification for Vehicle-to-vehicle Measurements

Parameter	Conditions	Specification
Longitudinal Range	±200m	0.03m RMS
Lateral Range	±20m	0.03m RMS
Resulting Range	200m	0.03m
Longitudinal Range Rate	±50m/s	0.02m/s
Lateral Range Rate	±20m/s	0.02m/s
Resulting Range Rate	±50m/s	0.02m/s
Resulting Yaw Angle	360°	0.1° RMS

Table 2. Technical Specification for Lane Measurements

Parameter	Conditions	Specification
Lateral Distance to Lane	±30m	0.02m
Lateral Velocity to Lane	±20m/s	0.02m/s
Lateral Acceleration to Lane	±30m	0.1m/s ²

Note: More detailed specifications can be found in the RT-Range User Manual

Software

The RT-Range comes with Windows Software. The software surveys the lines, makes the maps, configures the RT-Range and provides real-time measurements on the PC screen.

Revision: 070823. Subject to change without notice.

RT-Range Software – Map Creation

