# ROMDAS Geometry Unit

Overview

The ROMDAS Geometry unit is an integrated GPS and MEMS Inertial Measurement Unit with a Navigation, Attitude and Heading Reference System processor. The unit provides the data for accurate and reliable Highway geometry data outputs.

The internal low-power signal processor runs a real-time Kalman Filter providing inertial enhanced 3D position and velocity estimates. The Kalman filter, configured specifically for vehicle movement, takes additional inputs from additional aiding sensors; a 3D magnetometer and a static pressure sensor to enhance the output accuracy.

The ROMDAS Geometry unit provides drift-free, GPS enhanced, calibrated 3D acceleration and 3D rate of turn.

The ROMDAS Geometry Sensor is:

⇒ Individually calibrated for temperature, 3D misalignment and sensor cross-sensitivity

⇒ Built-in test (BIT) feature

⇒ GPS antenna fault detection

⇒ External active antenna status detection circuit
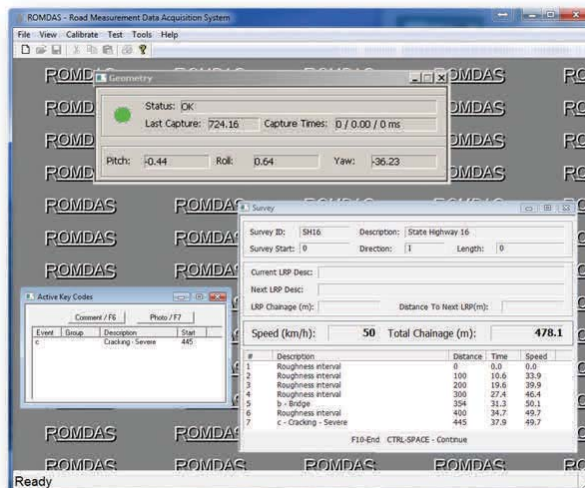
⇒ High update rate of 100Hz
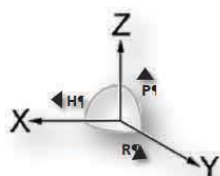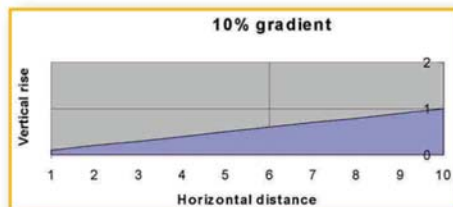
The ROMDAS software does not require any operator interaction during Geometry data collection.

Operation

Easy to install and setup, this module can be integrated into a ROMDAS system within an hour.

A real-time output of vehicle Pitch, Roll and Yaw is displayed in the ROMDAS Data Acquisition software during the survey.

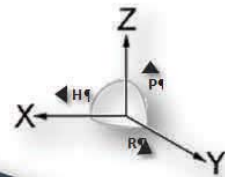*ROMDAS Survey Screen with Geometry Module*

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Components

The ROMDAS Geometry System is comprised of the following components:

♦ Inertial Measurement Unit (IMU) mounted inside a small & robust enclosure

♦ GPS Antenna

♦ Interface Cable

Technical Specifications

Outputs	♦ Grade (%)
	♦ Horizontal curvature (m)
	♦ Cross-slope (%)
Update Rate	100 Hz
Output File Format	Microsoft Access Files.
Environmental:	
Shock (any axis)	20,000 m/s^2 (2,000 g) 0.5 ms (half-sine)
Operating/Storage Temperature:	-20° C …. 55° C
Humidity	95%
Integrated GPS	16 Channel with full SBAS support