ROMDAS
Road Geometry Unit

Manufactured by Data Collection Ltd
8C Bentinck Street, New Lynn, Auckland 0600, New Zealand.
Ph.: +64 9 827 7703

www.romdas.com
Email: info@romdas.com
ROMDAS® (ROad Measurement Data Acquisition System) has been developed by Data Collection Ltd. (DCL) as a comprehensive, cost effective and modular system for collecting asset and pavement information. Implemented in over 60 countries, it’s flexible design allows for installation on locally sourced vehicles and meets widely accepted international standards.

Depending on your needs, a ROMDAS system can be easily customized with a variety of add-on modules to suit the specifications and budget of any project.

Whether a private consultant, government department or research institution, ROMDAS offers great reliability, flexibility and ease of use for anyone who needs to quickly and accurately collect asset data.

ROMDAS CAN BE USED FOR...

✓ High-speed network level or project specific road surveying
✓ Road roughness surveys
✓ Transverse profile/rutting surveys
✓ Macro-texture (MPD)
✓ Visual condition, environment or event rating
✓ Automatic crack and surface defect inspections
✓ Location referencing (spatial GPS/GNSS data or linear LRP data)
✓ GIS mapping of condition data and road alignment
✓ Video logging surveys (right of way, 360 and pavement view)
✓ Mobile mapping of roadside assets & inventory
✓ Road geometry surveying
✓ Travel time and congestion surveys
✓ iRAP road safety surveys
OVERVIEW

The ROMDAS Geometry Unit is an integrated GNSS and Inertial Measurement Unit (IMU) used for measuring road geometry. Utilising a combination of accelerometers, gyroscopes, Kalman filters and GNSS signals, this unit is able to accurately record the vehicle's location, roll, pitch and heading while driving. This orientation data is then referenced to distance from the ROMDAS odometer to calculate cross-slope, super-elevation, gradient and radius of curvature.

Accurate, compact, easy to install and cost-effective are all reasons why this module is a practical add-on for any ROMDAS system.

LACKING HISTORICAL DESIGN DATA? NO PROBLEM!

There are still many places around the world with limited historical records of road designs, especially on regional or rural networks. Without this type of geometry information it can make improving designs or implementing new safety standards particularly challenging. Collecting this baseline data using traditional survey techniques is unquestionably expensive and time-consuming. However this is where a high-speed device like the ROMDAS Geometry Module really proves its worth. Not only will it output critical geometry data while driving at normal traffic speeds, it can also be combined with a variety of other ROMDAS modules to simultaneously collect extensive pavement condition data.

APPLICATIONS

- Ensuring constructions comply with design standards
- Updating historical design records across an entire network
- Calculating safe cornering speeds
- Identifying road sections requiring redesign
- Assessing surface water drainage

SPECIAL POINTS OF INTEREST:

- Easily installed and calibrated
- Very cost-effective
- Does not require operator input during data collection
- One click self-testing feature
- Real-time data display
- Non-proprietary file formats and easy exporting to industry formats like .CSV, .Shp, KML, Excel, etc.
- High update rate of 100Hz
- Individually calibrated for temperature, 3D misalignment and sensor cross-sensitivity
- GPS antenna fault detection

Manufactured by Data Collection Ltd
8C Bentinck Street, New Lynn, Auckland 0600, New Zealand.
Ph.: +64 9 827 7703
www.romdas.com
Email: info@romdas.com
**ROMDAS Module:**

**Road Geometry Unit**

### Installation and Operational Principle

Easy to install and setup, this module can be integrated into a ROMDAS system within an hour. Additionally, calibration requires no specialised tools.

While surveying it accurately measures the GPS location along with vehicle roll, pitch and heading. The ROMDAS Data Acquisition Software displays real-time updates during surveys and requires no active input from the operator. The raw orientation information is logged and referenced to distance and road chainage.

During processing ROMDAS calculates pavement cross-slope (or super-elevation), gradient and radius of curvature for corners. All data is summarised over user-defined intervals (e.g. 5m, 10m, 20m, 100m, etc.).

The tabular data is saved in Microsoft Access databases and easily exported to other generic formats (e.g. .CSV or Excel). Alternatively, DataView Post-Processing software can easily convert all data into GIS layers and export to third party mapping or design software like ArcGIS or AutoCad.

For additional accuracy it is recommended the Geometry Module is paired with a ROMDAS Transverse Profiler Logger (TPL). This will help calculate and eliminate the influence of the vehicle's suspension.

### Components

The ROMDAS Geometry Module is comprised of the following components:

- Integrated GNSS and Inertial Measurement Unit (IMU) mounted inside a small & robust enclosure
- Magnetic GNSS antenna
- Interface cable

### Specifications

**Outputs**

- Grade (%)
- Horizontal curvature (m)
- Cross-slope and Super-elevation (%)

**Update Rate**

100 Hz

**Output File Format**

Microsoft Access Files,

**Environmental:**

- **Shock (any axis):** 20,000 m/s² (2,000 g) 0.5 ms (half-sine)
- **Operating/Storage Temperature:** -20° ... 55° Celsius

**Integrated GPS**

16 Channel with full SBAS support