



# ROMDAS

## Laser Crack Measurement System (LCMS)



# ROMDAS System Overview

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.

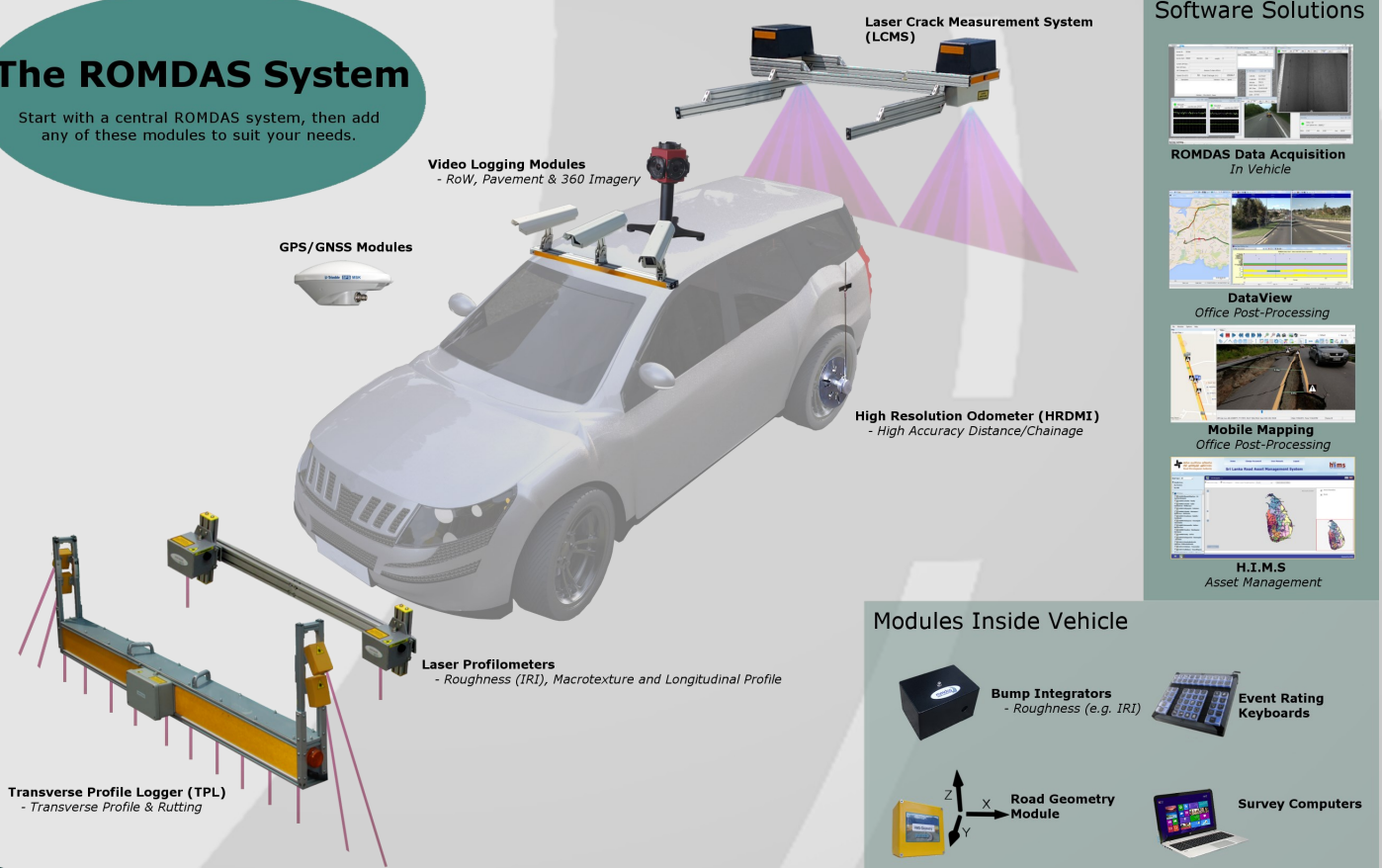
Whether a private consultant, government department or research institution, ROMDAS offers great reliability, flexibility and ease of use for anyone who needs to quickly and accurately collect asset data.

## 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

## The ROMDAS System

Start with a central ROMDAS system, then add any of these modules to suit your needs.



ROMDAS Module:

# Laser Crack Measurement System

## SPECIAL POINTS OF INTEREST:

- Exceptional price for a system utilizing industry standard Pavemetrics™ lasers
- Pavement images with cracking and defects automatically overlaid
- 4m width profiles with +4,000 points per profile
- Detects cracking down to 1 mm
- Operates up to 100 kms/h
- Lane tracking feature for consistency
- Day or night operation
- Upgrade for airport FOD detection available\*
- Add ROW cameras, GPS and other modules to supplement LCMS™ data
- Real-time display during surveying
- Non-proprietary data formats and easily exportable to Excel, GIS mapping or asset management systems
- Reprocess data using different parameters without re-surveying
- Roof mounted, not bumper mounted, for increased maneuverability
- System powered by vehicle battery, with no need for additional generators

\* Contact our Sales team for more information.

## 3D PAVEMENT PROFILING WITH LCMS

The ROMDAS LCMS™ module is one of the most advanced multifunctional devices for measuring pavement condition. The LCMS™ is connected to a central ROMDAS system and controlled by the ROMDAS Acquisition Software. It uses high speed cameras, 2 laser line projectors from Pavemetrics™ and advanced optics to acquire high resolution 3D profiles of the road surface.

LCMS™ records more than 5,000 full 4 m wide profiles per second while travelling at normal traffic speeds. The high frequency of profiles allow for automatic identification of a range of critical pavement attributes.

It's custom optics and high-power scanning lasers mean the system is unaffected by light conditions and can operate in full daylight or night-time.

## PROFILE ANALYSIS

Thanks to the exceptionally accurate transverse profiles, scan frequency and analysis algorithms, the LCMS™ is capable of automatically calculating datasets like:

- Cracking (including, width, depth, length, type and even sealed cracks),
- Rut depth, width and cross-sectional area,
- MPD Macro-texture,
- Pavement Type and Marking detection,
- Edge drop-off and curb detection,
- Ravelling detection,
- Bleeding,
- Pothole and Delamination detection,
- Shoving,
- Concrete joints and faulting,
- Water pooling depths,
- Sewer and storm-drain detection ,
- Pavement images automatically overlaid with defects.

Upgrades available also enable the collection of:

- Longitudinal profiles and roughness (IRI),
- Road geometry (slope, cross-fall, radius of curvature, super elevation),
- Airport Foreign Object and Debris (FOD) detection.
- Terrain mapping for CAD

The LCMS™ is ideal for network level surveys or for customers who require the high accuracy and variety of data needed to manage modern roads.



ROMDAS Module:

# Laser Crack Measurement System

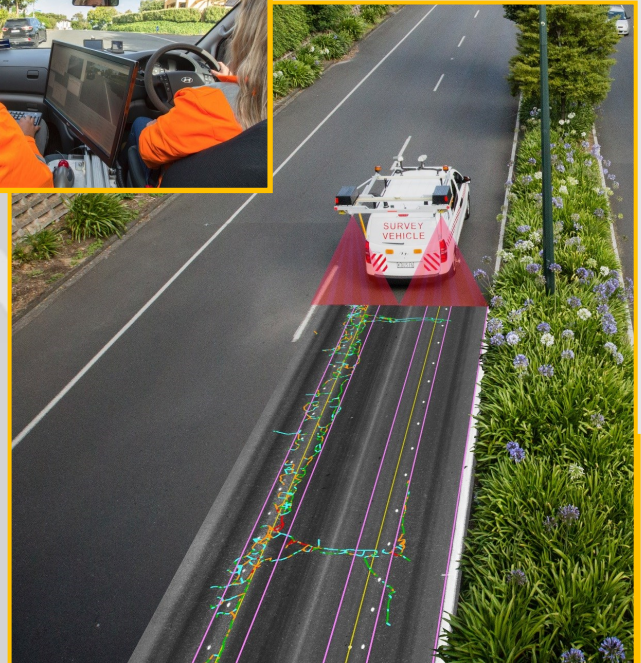
## OVERCOMING TRADITIONAL LIMITATIONS

Traditionally survey systems relied on several single-point lasers mounted at bumper height to record longitudinal and transverse profiles. This approach has inherent limitations when surveying in the real-world, including:

- Reliance on the driver to follow an exact driving line
- Curbs or drop-off affecting rut depth calculations
- Inability to accurately measure rut width or area
- Large spacing between sensors can distort transverse profiles by missing high or low points

The operational principle of LCMS™, with its scanning lasers and lane tracking feature, overcomes all these limitations to ensure high accuracy and repeatable data is collected from year to year.

We believe the LCMS™ is the next evolution for pavement analysis on developing and modern road networks.



## Specifications

Sampling Rate	28,000 Hz (profiles per second)
Vertical resolution	+/- 0.10 mm
Laser Type Classification	Class 4
Laser Safety Classification (Complete System)	Class 1 (as defined in IEC 60825-1:2014)
Outputs	<p><b>Standard outputs:</b></p> <ul style="list-style-type: none"> <li>• Cracking (Longitudinal, transverse, alligator, multiple, sealed cracks),</li> <li>• Rut depth, width &amp; cross-sectional area for each wheel path,</li> <li>• Macro-texture (MPD, MTD) across whole lane width in 5 AASHTO band,</li> <li>• Potholes &amp; Delamination,</li> <li>• Edge drop-off and curb detection,</li> <li>• Pavement type detection,</li> <li>• Pavement marking detection,</li> <li>• Raveling,</li> <li>• Bleeding,</li> <li>• Shoving,</li> <li>• Concrete joint/faulting,</li> <li>• Water pooling,</li> <li>• Sewer and storm –drain,</li> <li>• Geotagged Pavement images (.JPEG).</li> </ul> <p><b>Optional Upgrades:</b></p> <ul style="list-style-type: none"> <li>• Longitudinal profile/Roughness (IRI in both wheel paths),</li> <li>• Geometry (slope, cross-fall, radius of curvature, super elevation).</li> <li>• Airport Foreign Object &amp; Debris (FOD) detection,</li> <li>• LDTM Terrain Mapping (export of .LAS files for CAD)</li> </ul>
Survey Speed	Up To 100 Km/h
Transverse Range	4m nominal (4160 points per profile)
Output File Format	Microsoft Access Files, JPEG Image files with Defect Overlay.
Environmental Protection	IP-65 (NEMA 4)
Power Consumption	150 Watts (240 VAC)
Applicable standards	ASTM E950, ASTM E965, ASTM E1703, ASTM E1845, ASTM E1926, ASTM D5340, ASTM D6433, AASHTO PP37, AASHTO PP38, AASHTO PP67, AASHTO PP68, AASHTO PP69, AASHTO PP70, AASHTO R56, AASHTO R85, AASHTO R86, AUSTROADS Guidelines (where applicable), ISO 13473, NCAT Profiler Certified (longitudinal profiler), LCPC Methode d'essai No 40, World Bank Technical Paper 46.