

Laser Rut Measurement System

Pavemetrics's laser rut measurement system (LRMS) is a transverse profiling device that detects and characterizes pavement rutting. The LRMS can acquire full 4-meter width profiles of a highway lane at normal traffic speeds, with 2 options of maximum sampling rate: 30 or 150 Hz. The system uses two 3D laser profilers that digitize transverse sections of the pavement with 1280 points. Custom optics and high-power pulsed laser line projectors allow the system to operate in full daylight or in night-time conditions. Road transverse profile data can be collected and processed in real time on board the vehicle. Rut extraction algorithms have been developed to automatically measure rut depth and width.

The system is delivered with a complete DLL library of C/C++ functions allowing the user to easily configure the sensors, acquire transverse profiles, extract road rut data, classify rut type (short, multiple, long radius) and validate the laser profiler calibration. Over the past years, this system has been used on a continuous basis by dozens of governments and private agencies. Hundreds of thousands of road kilometers have been surveyed using this technology.



KEY FEATURES

- 1280 point 3D transverse profiles
- Daylight or nighttime operation
- Short integration times for minimal image blur at maximum inspection speeds
- A library of C/C++ functions for easy use and integration
- Proven performance
- Inspection speeds up to 100 km/h
- Rut depth and type (short, multiple and long radius) is evaluated.

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BENEFITS

- Immediate and precise detection and characterization of rutting conditions
- Optimization of road maintenance funds
- Improvement of safety due to better road pavement maintenance

SYSTEM SPECIFICATIONS

- Number of laser profiles: 2
- Number of 3D points per profile (max): 1280 points
- Sampling rate: 30 or 150 profiles/s
- Vehicle speed: 0 to 100 km/h
- Profile spacing: adjustable
- Transversal field-of-view (nominal): 4 m
- Transversal resolution ± 2 mm
- Depth range of operation: 500 mm (30 Hz) or 450 mm (150 Hz)
- Depth accuracy (nominal) ± 1 mm
- Laser profiler dimensions (approx.): 108 mm(W) x 692 mm(H) x 220 mm(D)
- Laser profiler weight (approx.): 12 kg
- Power consumption (max): 150 W at 120/240 VAC



All specifications subject to change without notice

