For further information on the ROMDAS road measurement system please visit www.romdas.com

Email: info@romdas.com
Phone: + 64.9.87.7703
Fax: +64.9.87.7704

ROMDAS
Manufactured by
Data Collection Ltd.
New Zealand

providers of innovative technology for measuring and managing roads

Bump Integrator

Overview

The ROMDAS® Bump Integrator (BI) for measuring road roughness is a response -type roughness meter. This is a mechanical instrument that measures the relative displacement of a vehicle's suspension in relation to the body of the vehicle. The concept behind Bump Integrator technology has long been established and proven worldwide. The BI readings are used to analyze the linear profile and calculate the 'roughness' of a road's surface. Depending upon the type of vehicle that the BI will be fitted to either one or two BI's may be used.

The raw roughness data from the BI can be recorded directly using either the The ROMDAS® system on a notebook computer or the miniROMDAS® system on a Pocket PC.

The raw roughness data can be converted into a calibrated roughness index such as IRI using user-supplied roughness equations (which are determined during roughness calibration). A well calibrated Bump Integrator will easily rival or exceed the accuracy of other Class 3 roughness profilers, including accelerometer based equipment.

A ROMDAS system with Bump Integrator requires little-to-no operator interaction during surveys and all readings are shown in real-time on the survey computer.

The Bump Integrator excels in rough, unpaved or wet conditions where laser based profiling equipment is unusable and thanks to its low minimum speed (10km/h) it can also be operated areas of high congestion unlike accelerometer based equipment.

Features and Benefits

Features of the BI include:

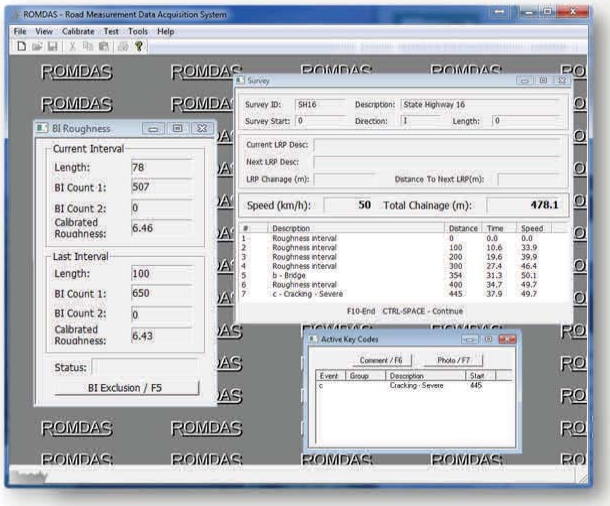
⇒ High resolution, high reliability optical encoder;

⇒ Designed for use in some of the most extreme and rugged road conditions;

⇒ Low minimum operating speed (10km/h);

⇒ Very low cost compared to vehicle mounted accelerometer based equipment.

⇒ Simple design allows for quick and easy installation and full serviceability in the field.



ROMDAS Survey Screen with Bump Integrator Module

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Installation

The BI is installed at the rear of the vehicle, above the rear suspension. The instrument is mounted on the floor of the vehicle and a cable is connected to the suspension.

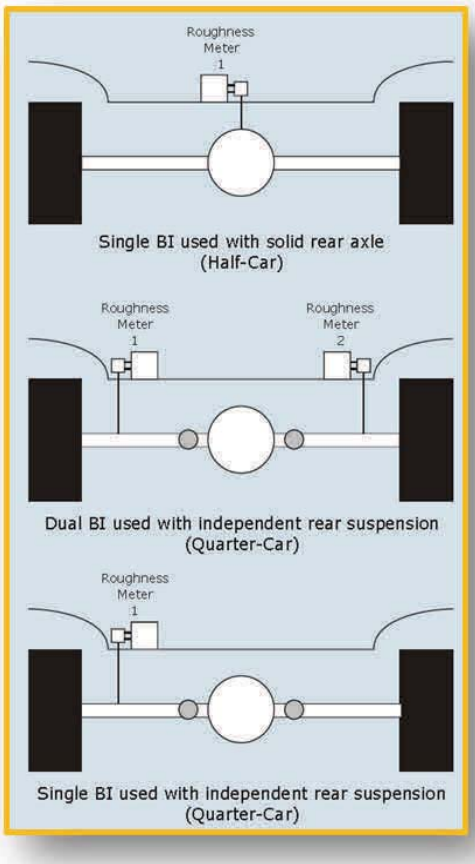
There are three possible configurations for installing the BI in a vehicle:

1 Solid rear axle:
If the vehicle has a solid rear axle the BI should be installed over the centre of the differential. This will measure what is termed a 'Half-Car' roughness reading.

2 Independent rear suspension:
This installation method utilises two BI units. If the vehicle has an independent rear suspension it is recommended that two BI units be installed; one for each wheel path. Each of these will measure a 'Quarter-Car' and the average of these two readings will give the overall roughness.

3 Independent rear suspension:
This installation method utilises one BI unit. The use of one BI unit with an independent rear suspension is possible, but not recommended. This is because the vehicle will still measure a 'Quarter-Car' reading but the roughness measurements will be dominated by the roughness in a single wheel path. It does not matter which one is being monitored as it will prove difficult to get a good calibration of the meter because the roughness will vary between wheel paths and test sections.

All mounting accessories are supplied for ease of installation.



Components

The BI kit comes complete with the following components:

⇒ 1 x Bump Integrator;
⇒ 1 x base plate and cover;
⇒ 1 x BI hook;
⇒ 1 x BI wire (spare);
⇒ 1 x BI spring (spare);

Technical Specifications

Encoder resolution:	850 pulse per revolution
Vertical resolution:	1 pulse per 0.25 mm of suspension up movement
Weight:	2.5 kg
BI wire breaking strain:	95 kg