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Optimap™ PSD

- MAPS & MEASURES SURFACE QUALITY
- 3D MAPPING OF SURFACE TOPOGRAPHY
- PSD TECHNOLOGY
- PORTABLE & EASY TO USE

Optimap™ PSD

THE NEW OPTIMAP™ MARKS A REVOLUTION IN THE CONTROL OF SURFACE QUALITY. FOR THE FIRST TIME SUBJECTIVE VISUAL ASSESSMENT CAN BE REPLACED WITH RELIABLE, REPRESENTATIVE MEASUREMENT.



For maximum consumer impact, high quality products require high quality finishes that are homogeneous, blemish and defect free.

Surface finish is currently assessed subjectively by visual inspection or measured by instruments that do not capture a full picture of surface quality.

A REVOLUTION IN SURFACE MEASUREMENT

The **Optimap™** provides a unique measurement solution for quantifying surface quality.

In a single fast operation the **Optimap™** maps the topography of a test surface displaying faults and texture in incredible detail. Mapped information is processed into objective surface measurements that can be used to effectively control product quality.

- Rugged and accurate the **Optimap™** is suitable for laboratory, factory or on-site inspection
- The soft touch measurement portal means the instrument can be used safely on the highest quality surfaces
- Surface texture and defects can be assessed on a huge variety of surfaces: semi matt surfaces to polished mirrors, small & curved parts
- A large area is mapped in a single operation (95 x 70mm)
- On screen 3-D Maps give instant access to surface topography
- Objective measurements can be displayed in traceable SI units or selected industrial scales
- Data and results are fully compatible with other analytical techniques and third party software
- Ondulo software allows sophisticated texture/fault analysis and report generation.

FAST, RELIABLE AND PORTABLE MEASUREMENT

Powered from its integrated rechargeable battery or directly from the mains supply, the **Optimap™** can be safely used for measurements in the laboratory, factory or remotely for on-site inspection.

As the instrument makes measurements optically using Phase Stepped Deflectometry it requires no movement over the surface.

With no moving parts the instrument is exceptionally rugged ensuring reliability and accuracy each time measurements are made.

WIDE RANGE OF TEST SURFACES AND APPLICATIONS

The **Optimap™** can be used on a wide range of surfaces from ultra low gloss to mirror finish on both large and small areas and with varying degrees of curvature.

Its rubberised soft touch measurement portal ensures safety when placed on the highest quality surfaces.



REPRESENTATIVE SURFACE ANALYSIS

The **Optimap™** objectively measures and characterises many aspects of surface quality including texture, waviness and local defects including orange peel, inclusions, dents and scratches.

Its large measurement area (95mm x 70mm) provides results that are more representative than those made with profilometers or other optical scanning instruments and can be reported in traceable SI units (m^{-1}) or other industry specific units.

With a high lateral resolution (<75um) the **Optimap™** has the power to capture surface defects that are invisible to the human eye.

INTUITIVE USER INTERFACE

The Optimap's intuitive user interface provides operation, setup and display of measurement results. Its icon based touch screen allows ease of use by simply pressing the relevant active areas on the screen.

Measurement results are displayed in 3D topological map, graphic and numeric formats.

The high resolution 3D maps allow closer inspection of the surface topology by interactive full screen zooming and panning.

Numeric results can be displayed as SI units or scaled to industry norms.

The Optimap's texture scale is correlated to the waviness scale using the same filtered bands commonly used in automotive and other high gloss applications. The global texture value can be used to objectively assess the amount of visible texture for a number of applications including plastics, metals and textiles.



A REVOLUTION IN SURFACE MEASUREMENT

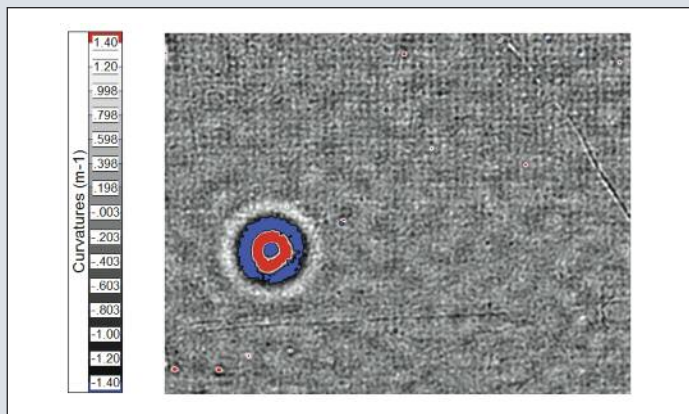
POWERFUL OFFLINE ANALYSIS

High resolution result maps can be easily transferred from the Optimap to a PC allowing post processing in Rhopoint Ondulo reader software or third party software such as MOUNTAINS.

Data transfer is simple using the USB key or interface cable supplied.

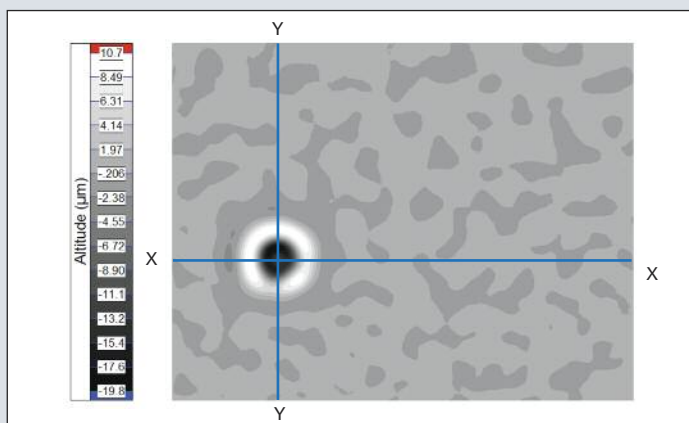
Rhopoint Ondulo reader software features advanced data analysis and reporting.

- Surface effects such as texture, flatness, number, size and shape of local defects can be identified, mapped and quantified



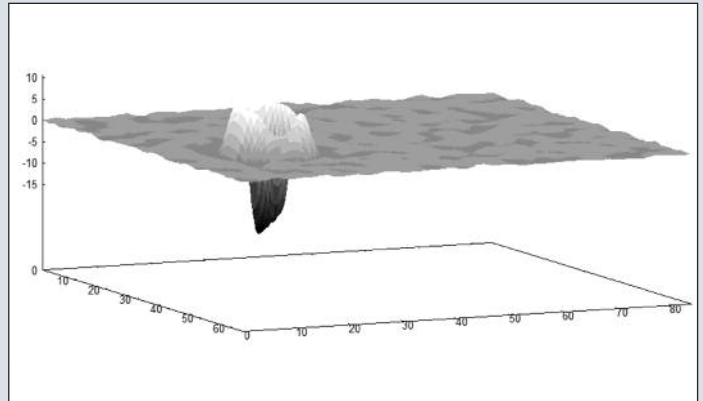
Range	Wave Length (mm)	Curvature (m ⁻¹)
K	0.1 – 30.3	2.246
Ka	0.1 – 0.3	1.526
Kb	0.3 – 1.0	1.217
Kc	1.0 – 3.0	0.390
Kd	3.0 – 10.0	0.446
Ke	10.0 – 30.0	0.199

- Profiles of curvature, slope or altitude can be characterised

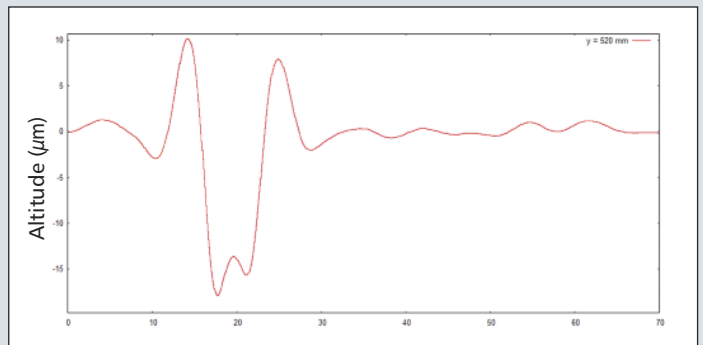


Example of defect analysis in Ondulo

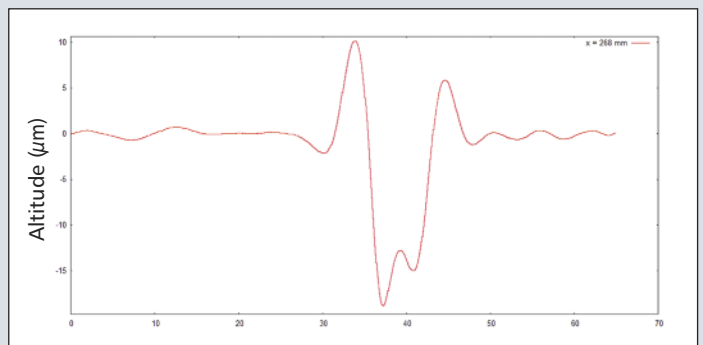
- Areas of interest within the 3D maps can be isolated and evaluated



3D View



Cross Section across Y-Y



Cross Section across X-X

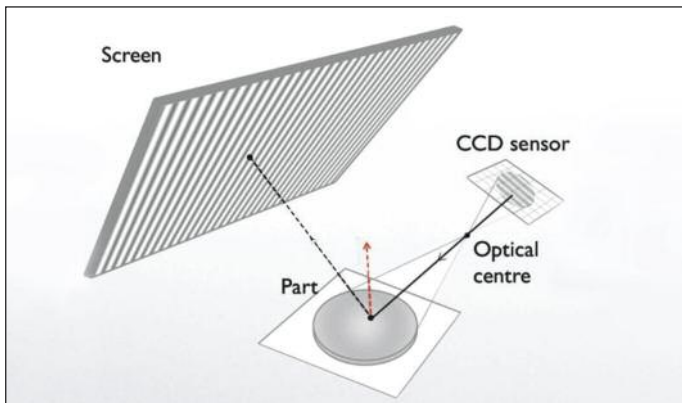
- Drag and drop feature allows images and data to be easily transferred to Microsoft Word for reporting
- Flexible screen view feature allows the display of result maps in single, dual or 3D format
- 3D view allows full rotation of surface and X / Y cross sectional views
- Dual view allows comparison of saved result maps
- Scaling dimensioned in either curvature (m⁻¹) or μm.

A REVOLUTION IN SURFACE MEASUREMENT

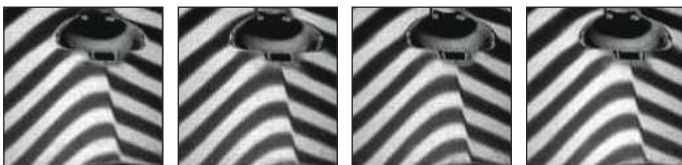
ADVANCED MEASUREMENT TECHNOLOGY

The **Optimap™** uses an advanced measurement technique known as Phase Stepped Deflectometry (PSD). This white light optical technique uses a periodic pattern with a sinusoidal waveform to measure the profile of a surface. The waveform is presented to the surface using a high resolution display and the reflected pattern captured by a high resolution camera.

The sinusoidal waveform acts like a ruler on the surface allowing the ordinates of the light source to be mapped as they are proportional to the spatial phase of the sinusoidal pattern profile.



By shifting or "stepping" the waveform phase it allows an accurate measurement of each point across the surface through the corresponding point per pixel on the camera. Using the geometric relationship between the display, surface and camera, reflected light rays are spatially modelled to calculate the direction of the normal at each point of the surface thereby allowing the profile at that point to be obtained.



By using the sinusoidal pattern profile orthogonally across the surface, multi-dimensional slope and curvature data is obtained.

By differentiating this data the curvature field can be calculated allowing an accurate characterisation of surface quality. This curvature field has a high sensitivity to local altitude variations caused by defects.

Unlike other instruments the **Optimap™** requires no movement over the surface as all measurements are performed optically using PSD thereby preventing any damage during operation.

SAMPLE APPLICATIONS



Paints and Coatings



Yacht Manufacturers



Aircraft



Metal Polishers



Polished Stone



Automotive



Smart Phone, Tablet PC and Laptop Covers



Wood Coatings



Automotive re-finish

INSTRUMENT SPECIFICATION

Display

- 6.5 inch Colour VGA TFT Touch Screen

Camera

- 1.3 Megapixels, image resolution 1296 x 966

Measurement

- 95mm x 70mm

Lateral Resolution

- 75µm

Data storage

- 200 readings

Power

- Rechargeable lithium ion
- 4 – 8 hours operation / charge

Operate from

- Internal battery / mains charger

Recharge Time

- Mains charger 1 – 2 hrs

Memory

- 6GB compact flash

Data Transfer

- PC compatible
- USB connection

Dimensions & Weight

- H x 200mm, W x 218mm, D x 250mm
- 3.0Kg

Languages



INCLUDED ACCESSORIES

- Verification tile
- USB data transfer cable and software
- USB Key
- Mini CD
 - Instruction manual
- Instructional videos

EXTRAS

Rhopoint Ondulo Pro Analysis Software - featuring advanced tools for the identification, classification and quantification of surface features and defects including:

- Texture
- Waviness
- Local Defects (Pinholes, Inclusions)
- Scratches

FREE EXTENDED WARRANTY

CALIBRATION AND SERVICE

Fast and economic service via our global network of accredited calibration and service centres, please visit www.rhopointinstruments.com/support for detailed information.



LOCAL AGENT

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