RHOPINT INSTRUMENTS

RHOPINT AMERICAS

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Manufactured by Rhopoint Instruments in the United Kingdom

TAMS™

Rhopoint TAMS® LG (Total Appearance Measurement System)

Designed for low-mid gloss surfaces

- Plastics
- Composites
- Primers
- E-Coat

What is the Rhopoint TAMS® LG?

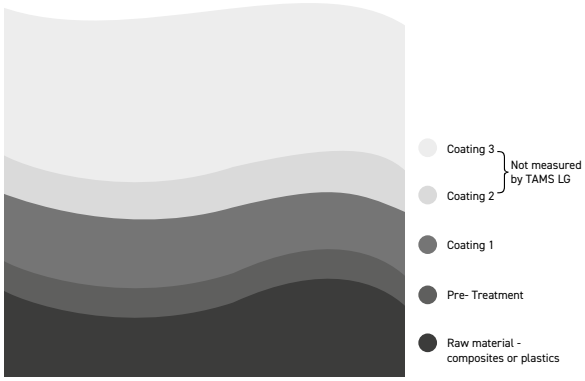
Instrumental analysis of surface roughness and waviness of raw materials

The quality of a surface coating and the cost involved in achieving it can be significantly influenced by the underlying condition of the substrate material.

Typically a coating system is built of many layers each interacting with the one it is applied to. Some layers tend to smooth the underlying surface whilst others add more irregularities to the layer structure.

Measuring the quality of the surface at each stage provides opportunities to optimise the overall paint process and to obtain a bettter understanding of the factors that influence the final surface appearance quality.

Typical coating structure



The Rhopoint TAMS® LG can be used at the first stage of the coating process.

The Rhopoint TAMS® LG is an essential tool for the Quality Control of raw materials and substrates.

This innovative device has many of the advantages of the high-resolution analytical tools combined with the portability and accessibility of a hand held device.

What does Rhopoint TAMS® LG measure?

To evaluate the suitability of raw materials, to optimize individual processes and to build a complete picture of how the quality of the final product is influenced at each paint stage, analytical data is needed to understand how each paint process fills, smooths and masks the underlying roughness from the base material.

Widely used laboratory devices producing 3D topographical maps with a sub-micron accuracy and resolution can only be used off-line, and measurement time is also a limiting factor as capturing a representative area on a surface may take many minutes or even hours. The high costs of the equipment and complexity of use usually limit deployment of analytical tools to central development functions in the OEM.

Fully portable TAMS® measures these surfaces with sub micron resolution, in situ in under 10 seconds . Measurements are taken according to DIN EN ISO 4287 (like optical Ra), or DIN EN ISO 25178 for a real topographic information (like Sa), but all topographic information may be exported in open *.res format for deeper analysis with commercial topographical analysis software.

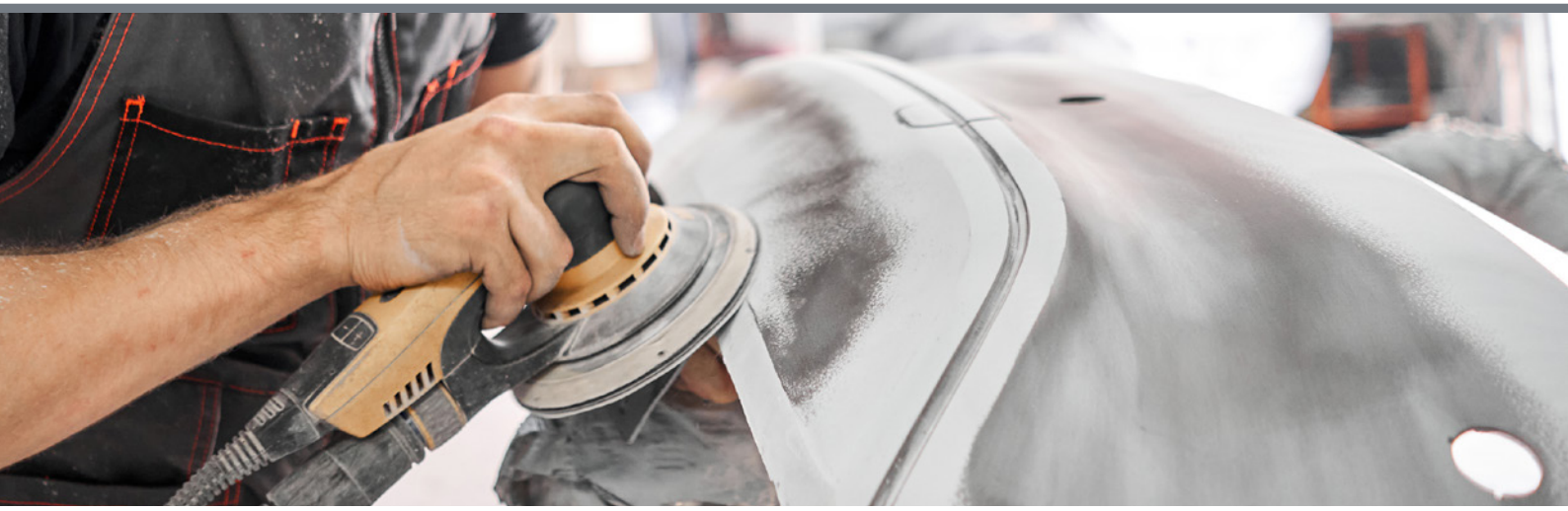
The Rhopoint TAMS® LG can measure:

- Open format *res files to be used with any topographic software
- Surface roughness according to DIN EN ISO 25178
- Waviness bands filtered using ISO GPS-sa

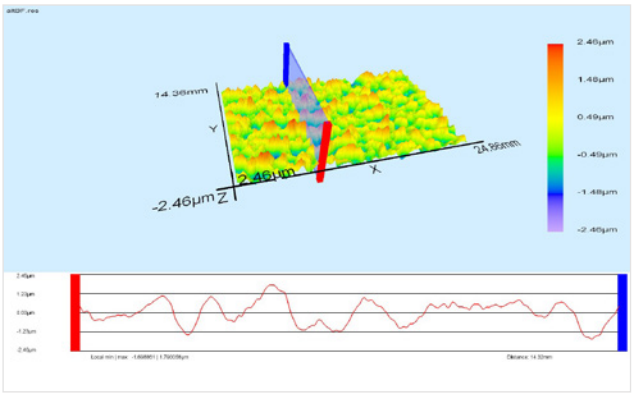
The Rhopoint TAMS® LG Technologies:

- Phase Measurement Deflectometry (PMD)
- Provides ISO 16610 compliant high-resolution 3D altiude maps
- Consistent readings of raw materials, surfaces in the painting process

The Rhopoint TAMS® LG creates a reading within 10 seconds.



The importance of substrate quality



Substrate materials can often exhibit surface inconsistencies that affect the quality of finish. Sink marks, depressions on the surface of injection molded plastic parts, can be caused during the plastic cooling process where thicker sections of plastic cool at a slower rate than others creating a higher percentage of shrink in a local area.

Mould lines can appear on the surface of a moulded composite part where the molten material has converged after splitting off into two or more directions in a mould. Bond line read-through, also known as telegraphing, is a condition where the footprint of the adhesive can be seen through a material. It occurs when an adhesive has a distorting effect on a material.

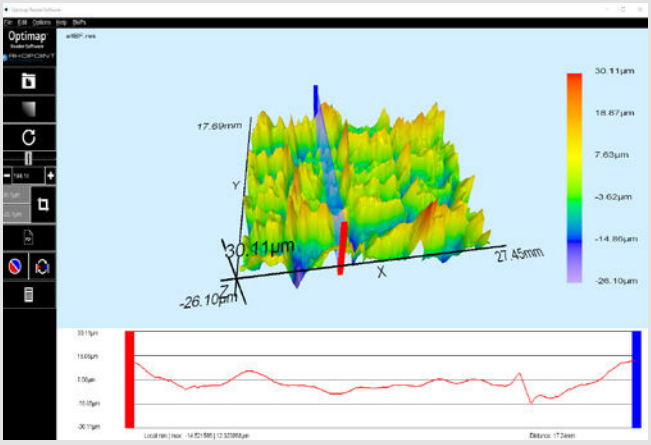
All these manufacturing issues can turn aesthetically pleasing surfaces into unsightly ones.

Topographical Analysis Software

All measurements are compatible with Rhopoint's own free image analysis software "Optimap Reader" included in the price of the TAMS®.

All topographic measurements taken are compatible with Rhopoint's Optimap Reader software or any commercial topographical analysis software.

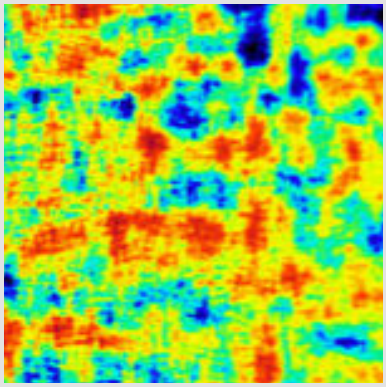
Not only relevant topographic indices can be analyzed. For simplicity, Rhopoint TAMS® LG enables easy documentation and reporting by using *Rhopoint Quality* indices to judge overall quality of an E-coat.



Sample results and correlation

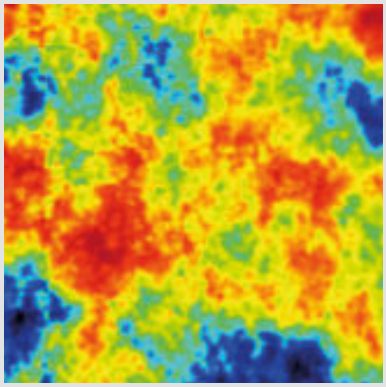
Rhopoint TAMS® LG allows the quality of each stage of a typical coatings process to be measured and quantified

Sheet metal



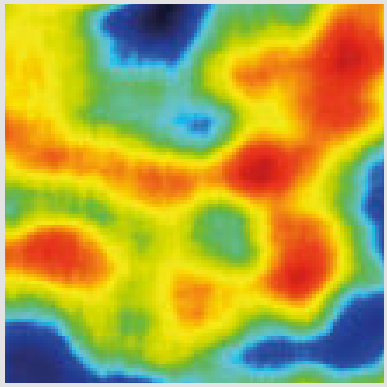
E-COAT

$Sa_{0.8}$=0.10µm



B-COAT

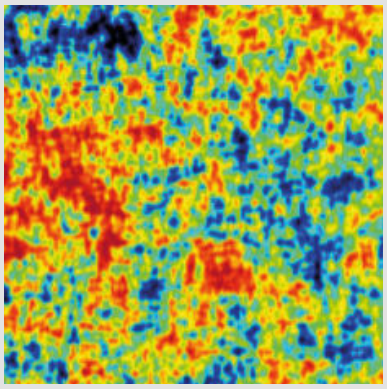
$Sa_{0.8}$=0.19µm



C-COAT

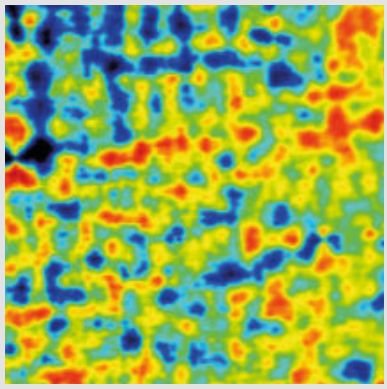
$Sa_{0.8}$=0.02µm

Composites



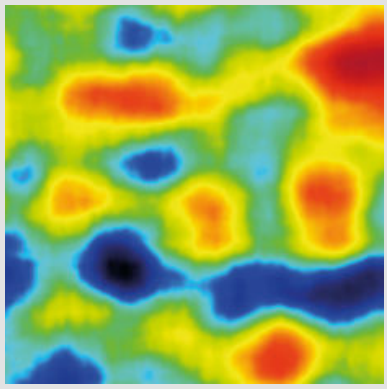
RAW

$Sa_{0.8}$=0.32µm



PRIMER

$Sa_{0.8}$=0.13µm



C-COAT

$Sa_{0.8}$=0.03µm

Features

Easy to use interface

5 capacitive sense buttons

Colour Screen

Full colour IPS screen

Soft-touch

Does not damage delicate surfaces

Measurement Operation

Tactile button & capacitive sensors with a push auto system

Processing Time

Capture and processing time = 10 seconds

Long Lasting

Rechargeable & removeable lithium polymer batteries

Included Accessories

- Batteries (x2)
- Calibration tile
- SD Card
- Optimap reader license
- Wrist strap
- Instrument calibration certificate
- Carry case

Specifications

WS-BANDS (C-/E-COAT)	Sa_A	Sa_B	Sa_C	Sa_D	Sa_E	Sa_LW	Sa_SW
Bandpass Filter [mm]	0.1 - 0.3	0.3 - 1.0	1.0 - 3.0	3.0 - 10.0	10.0 - 13.5	0.3 - 1.2	1.2 - 12.0
Resolution (on display)				0.1			
Repeatability [SD]				0.1			
Reproducibility [SD max]				0.3			

E-COAT / R-MAT (O-ROUGH)	Arithmetical mean height of surface area	Roughness Average in X-direction	Roughness Average in Y-direction
Index [units]	**Sa [µm]**	**RaX [µm]**	**RaY [µm]**
Minimum		0.0	
Maximum		20	
Resolution [on display]		0.1	
Repeatability [SD]		0.1	
Reproducibility [SD max]		0.3	

Free extended 2 year warranty: Requires registration at www.rhopointinstruments.com within 28 days of purchase. Without registration, 1 year standard warranty applies.

Calibration and service: Fast and economical service via our global network of accredited calibration and service centres. Please visit www.rhopointinstruments.com for detailed information.

Ethically Sustainable

The Rhopoint TAMS® LG is made from an all aluminium construction which means it can be recycled at the end of its long life.

Specifications

Instrument Information	
Battery type	Rechargeable lithium-ion
Power supply	9VDC 2.0A
Readings per charge	1200
Memory	>100,000 readings
SD card slot	up to 32GB (only for data transfer)
Interfaces	SD Card, micro USB
Operating temperature	15-40°C
Commodity code	9027 5000
Calibration temperature/humidity	22°C ±2.5 relH ≤ 55%
Storage temperature/humidity	0°C - 45°C
Display	LCD: Color IPS screen
Control	5 touch keys, 2 physical buttons, Sensor system
Additional sensor	Accelerometer for instrument orientation recording
Resolution (surface)	37µm/pixel
FOV	27mm x 16mm
Data management	Optimap Reader Software, Export via SD Card

Dimensions & Weights	
Dimensions	172mm (H) x 129mm (W) x 53mm (D)
Weight	1kg (including batteries)
Packed weight	9.15kg
Packed dimensions	51 (H)x 51 (W) x 51 (D)

Measurement Time	
Typical acquisition time	5s
Typical computation time	2s (dependent on selected image saving and filtering option)

Order Codes	
Rhopoint TAMS LG	A7100-003/2

Included Accessories:

- Certified calibration plate
- Instrument Calibration certificate
- Storage case
- Optimap Reader Software
- 1 set of batteries
- SD card, battery charger with cable

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TRY BEFORE YOU BUY

We offer two options for you to try out the Rhopoint TAMS® LG before buying.

1. **Online demonstration**: Online presentation of the Rhopoint TAMS® LG with your samples measured LIVE on Zoom, Microsoft Teams or Skype. Includes a consultation with an application specialist.

2. **Factory sample testing**: Send in samples of your material for testing and receive a comprehensive test report.

Arrange a demo

Ready to receive a quote? **Click here**

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