

# micro-wave-scan

## Orange Peel and DOI measurement

Now you can measure Orange Peel and DOI on small and curved surfaces: Automotive add-on parts – like bumpers, gas tank doors, mirror housings, door handles, decorative trim or motorcycle parts.

### ...for curved and small parts

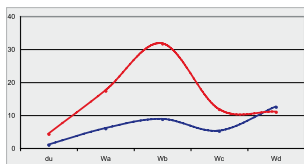
- Curvature > 300 mm
- Minimum sample size: 25 mm x 40 mm
- Selectable scan length 20, 10 or even 5 cm
- Measurement area: 4 mm x scan length
- DOI measurement possible without scanning the surface
- Good correlation to wave-scan DOI, the appearance standard in the automotive industry

### Fits in the palm of your hand

- Small and light weight, easy to operate with one hand
- New scroll wheel to select functions and operate button to take readings
- Large, multilingual display: complete statistics and name input directly at the orange peel meter
- Storage of 2000 readings in selectable memories
- Docking station for recharging battery pack and data transfer to PC
- Rechargeable battery pack or standard mignon batteries can be used
- smart-chart software for professional analysis, documentation and data management

## Objective and reliable appearance data

- Structure spectrum gives detailed information about various structure size
- High correlation to the visual perception
- Cause of appearance changes can be analyzed
- DOI – Distinctness of Image: objective measurement independent of paint system and curvature



select mode ...



and measure



## Always ready

The micro-wave-scan is operated with a rechargeable battery pack (Li-Ion). The docking station automatically charges the battery pack and transfers the measured data to the PC. Optionally, the orange peel meter can be operated with 2 standard AA alkaline or rechargeable batteries – good for 1000 readings.

**Certified** Please refer to section Preventive Maintenance.

### Ordering Information

Cat. No.	Description
4824	micro-wave-scan

#### Comes complete with:

Orange peel meter with protective cap,  
Certificate,  
Checking tile,  
Software smart-chart on CD,  
Docking station and USB-cable,  
2 rechargeable Li-Ion battery packs,  
Battery holder for AA batteries,  
2 Batteries, Operating manual,  
Carrying case and belt case,  
Training

**Extended Warranty:** see pages about Technical Service

#### System requirements:

Operating system: Windows 7 SP1 or 8.1  
Microsoft® .NET Framework 4  
Hardware: Core 2 Duo, 2.2 GHz; i7, 2.5 GHz recommended, or equivalent  
Memory: 4 GB RAM, 8 GB recommended  
Hard-disk capacity: min. 300 MB  
Monitor resolution: 1280 x 1024 pixel or higher  
Disk drive: CD-ROM or DVD drive  
Interface: free USB-port



### Technical Specifications

<b>Application</b>	
<b>High Gloss Surfaces</b>	du < 40, linear range
<b>Structure Spectrum</b>	du: < 0.1 mm Wa: 0.1 - 0.3 mm Wb: 0.3 - 1 mm Wc: 1 - 3 mm Wd: 3 - 10 mm
<b>Scan length/</b>	20 cm: du, Wa...Wd, L, S, DOI
<b>Measurement scales</b>	10 cm: du, Wa...Wd, L, S, DOI 5 cm: du, Wa...Wd, L, S, DOI 0 cm: du, Wa, Wb, DOI
<b>Repeatability<sup>1</sup></b>	8% or > 0.8
<b>Reproducibility<sup>1</sup></b>	12% or > 1.2
<b>Object Curvature</b>	radius > 300 mm
<b>Min. Sample Size</b>	25 mm x 40 mm
<b>Measurement Area</b>	4 mm x scan length
<b>Scan Length</b>	5 / 10 / 20 cm
<b>Resolution</b>	375 points/cm
<b>Memory</b>	2000 readings
<b>Interface</b>	USB port
<b>Languages</b>	English, French, German, Italian, Japanese, Portuguese, Spanish
<b>Light Source</b>	Laser diode, LED
<b>Laser Energy</b>	< 1 mW (Laser class 2)
<b>Dimensions</b>	70 x 120 x 40 mm (2.7 x 4.7 x 1.6 in)
<b>Weight</b>	250 g (0.6 lbs)
<b>Power Supply</b>	rechargeable battery pack or 2 AA batteries, approx. 1000 readings
<b>Temperature Range</b>	operation: +10°C - 40°C (+50°F - 104°F) storage: 0°C - 60°C (+32°F - 140°F)
<b>Relative Humidity</b>	up to 85% at 35°C (95°F)

<sup>1</sup> Standard deviation

### Training for micro-wave-scan

BYK-Gardner offers you more than just an instrument. We assist you in operation of the micro-wave-scan system and understanding your appearance readings. As a result you will be able to use the orange peel meter to save time and money and at the same time improve your quality. Therefore, the instrument comes with a one day training course including:

#### 1. Orange Peel and DOI Theory

- Visual perception and instrumental measurement of Orange Peel and DOI
- Data interpretation: How can the structure spectrum be used to optimize process / material parameters

#### 2. Operation and Software Training

- Set-up of an "organizer" to create a routine measurement procedure
- Programming of the instrument with "organizer" and measurement of several samples
- Direct data transfer to Excel for documentation of individual readings
- Data transfer to smart-chart software and saving in a database for routine QC
- Data analysis using standard QC-reports:
  - Summary by lines to show at one glance how various colors are running at different paint lines
  - Trend chart to show how specified zones perform over a defined time range
  - SPC-chart for daily process control of your critical colors and highrunners: xR-chart
  - Zone profile for trouble shooting using the structure spectrum



- Create your own reports in Excel
  - Transfer data from the database to Excel
  - Pivot function to define layout in Excel

The training can be performed in one day or two half days. It is recommended to split the training into two half days:

- Day 1: Theory and basic operation (set-up organizer, taking readings and saving data in a database)
- Day 2: 3-4 weeks later to ensure readings were taken and saved in a database. Data analysis and standard QC reports can be explained using customer specific data.

### Ordering Information

Cat. No.	Description
4857	Docking Station, for 4824
4829	Checking Tile, for 4824
4827	Battery Pack micro-wave-scan
4831	Software smart-chart



### Accessories

- Incl. USB cable and recharger 100 - 240 V self adapting
- Replacement – please contact your local service department for replacement of your checking tile.
- Rechargeable battery for automatic charge in docking station
- Software for analysis and professional documentation in Excel®

**Certified** Please refer to section Preventive Maintenance.