

# Optical distortions in less than 50 ms

## Performances & Benefits

Maximum field size: 2.0 m x 1.5 m.  
 Measuring range: +/- 400 mdpt.  
 Measuring accuracy: +/- 3%  
 Measuring spatial resolution: 1 mm.

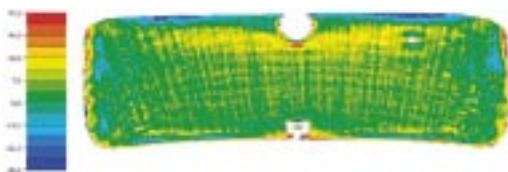
Swing angle range: 0° - 60°  
 Tilt angle range: 5° - 90°

Time of acquisition: 50 ms.  
 Measurement result: < 4 s.

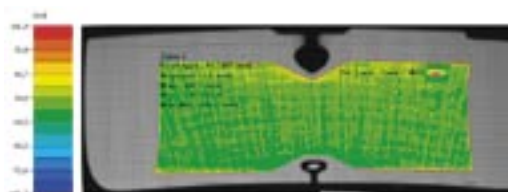
Fast integration in line of production.  
 Full field measurement.  
 Low-cost maintenance.



With the significant evolution of the design, the automotive glass industry is subjected to high levels of acceptability for the optical, mechanics and aesthetic properties. The high metrological performances of **DIOPTRIX™** lead the measuring solution as the state-of-the-art reference to inspect and characterize the optical distortions for laboratory and in-line applications. Meeting the international automotive standards regulating the glass quality control, **DIOPTRIX™** includes a mechanical support frame adjustable according to the vehicle configuration and provides instantaneously high accuracy measurements of the optical distortions in millidiopters.



Isotropic optical power



Rating: definition of the critical areas

## Applications

- Mineral and organic glass: windshield, rear window, side, sunroof ...
- Tinted glass: up to 10% of the transmitted light
- Detection of the horizontal, vertical and isotropic optical distortions (mdpt)
- Distortion of the «pea pattern» according to the standard R43 (mm or %)
- Optical power gradient, astigmatism
- Dilation, shear



## Software features

Horizontal, vertical and isotropic distortions in millidiopters (mdpt).  
 Project and analysis management in expert mode and in operator mode.  
 User-friendly operator interface.  
 Configuration and backup of the measurement data.  
 Definition of the critical measurement areas (Rating):

- Statistics and specific data processing of the selected region of interest
- Rate of change function
- Display of the results directly on the visualized glass
- Alarm management of the threshold values for acceptability
- Simplified location of the defects on the maps

Automatic location of the silk-screen printing and the heating wires.  
 Surface analysis: 2D cross-section and 3D display.  
 Multiple display of the maps: colour-coded, grey scale, level lines ...  
 Automatic classification on statistical criteria.  
 Data transfer of the results in the format MS Excel™.  
 Automated editing of the measurement reports.  
 User guide.

## Material features

Backlight silk-screen printed grid.  
 All-purpose adjustable and accurate glass support for a fast setting.  
 High resolution camera.  
 Lens adapted to the measured field.  
 State-of-the-art Windows™ computer.

## The glass industry-focused expertise

The VISUOL Technologies team answers to most of the quality inspection projects in the glass industries:

- Ophthalmic glass, building glass, packaging glass, special glass...
- Measurement services in transmission
- Measurement services in reflection
- Surface appearance quality in curvature scale (m-1)
- Variation of 3D shape compared to the nominal shape (mm)
- Aesthetic defects: inclusions, bubbles, scratches, erosion...
- Theoretical and practical training
- Hire system for acquisition and data processing
- Integration in line of production

## DIOPTRIX™

Powered by ONDULO

Developed and managed by the company VISUOL Technologies, DIOPTRIX™ solution is based on the famous ONDULO technology and the optical principle of deflectometry applied to the spatial phase shifting.

