

# Measurement devices for contactless thickness and profile measurement OLCI and HP OLCI



The OLCI and HP OLCI series of optical measuring devices (optical low-coherence interferometry) were developed for contactless measurement of thicknesses and profiles. The measuring process is based on the principles of optical coherence tomography (OCT), in which light of a low coherence length is used to measure distance by means of an interferometer. The measured objects are scanned at several points. A movable sensor head can scan the surface and/or thickness profile. The depth resolution is only limited by the coherence length of the light source. It is also dependent on the refraction index of the sample.

The measuring devices feature integrated Windows PCs. They can be used as a single workstation solution or as a server. Networking is via simple TCP/IP connections, allowing results to be displayed simultaneously at different points. The devices can also be easily incorporated into existing production processes. The measuring devices continuously calibrate themselves internally. The measuring arrangements can be implemented individually to customer requirements. Single or multiple-layer measurements are possible.

#### Typical applications

Glass industry:	optical glass (thickness, flat glass, glass in the automotive sector, glass cylinders, center thicknesses on lenses)
Opthalmic industry:	contact lenses, IOLs, center thickness on spectacles lenses
Industry:	surface coatings, films, barrier coatings, adhesives, packaging, paints, films, live determination of etching rates
Semiconductor industry:	solar cells and wafer thickness measurement
Medical technology:	tubes (wall thicknesses, ID, OD), catheter

### OLCI and HP OLCI measuring devices in comparison

	OLCI	HP OLCI	
Measuring method	Low-coherence interferometry	Low-coherence interferometry	
Measurement wavelength	1310 nm	1310 nm	
Typical measurable materials	Glass, plastic, silicon, coatings, paints, films, fluids, air gaps, contact lenses	Glass, plastic, silicon, coatings, paints, films, fluids, air gaps, contact lenses	
Precision	+/-1μm	+/- 10 nm (depending on reference samples)	
Reproducibility	+/- 0,1 μm	+/- 10 nm	
Measuring frequency	10 Hz	5 Hz (optionally 100 Hz and 200 Hz)	
Measuring range	50 μm - 5 mm	10 $\mu m$ - 150 mm (optionally up to 1000 mm)	
Channels for parallel measurement, by device	12	2 (optionally up to 6)	
Dimensions	19" 2 U	19" 6 U	
Temperature range	15-30°C	15-30°C	
Operation at relative humidity	10-90 % (non-condensing)	10-90 % (non-condensing)	
Operating system	Win 7 / 10	Win 7 / 10	
Interfaces	RJ-45 Ethernet	RJ-45 Ethernet	

# Optional axis system

	Travel (mm)	Precision (μm)	Reproduci- bility (μm)
X-axis (scan)	300	20	3
Y-axis (scan)	300	20	3
Z-axis (focus)	80	20	3

An axis system makes it possible to create mappings or surface profiles, for example. All axes are driven using stepper motors. Axis systems larger than 300 x 300 mm can also be produced on request.

Axis system dimensions (height x width x depth): 600 mm x 600 mm x 993 mm

Maximum sample size (height x width x depth): 70 mm x 300 mm x 300 mm

Weight: Approx. 55 kg

# About the manufacturer

Based in Leipzig, Germany, OPTEG has been a reliable supplier of devices for optical real-time monitoring for many years (doublebeam photometers based on a monochromatic measurement of reflection or transmission). OPTEG also develops and produces measuring devices like the OTFP-series (optical thin film probe) which allow fast, precise and contactless measurement of film thicknesses in the nanometer and micrometer range.

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