



# OpticsQualityMonitor

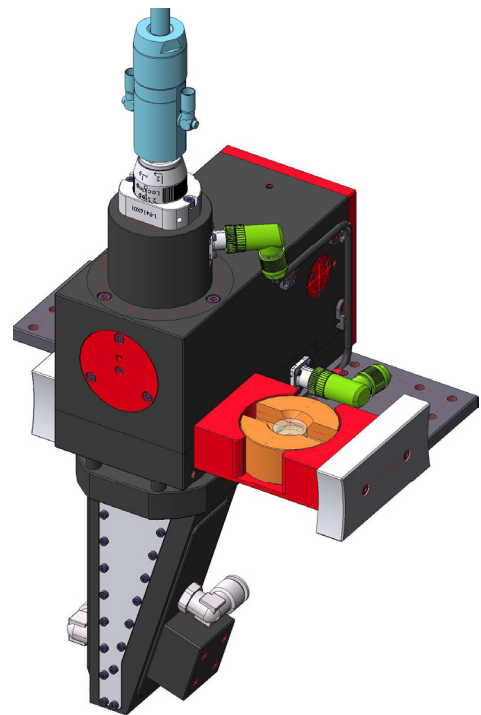


## The Principle

The OpticsQualityMonitor enables the control of absorption characteristics of optics in the supplier's, processor's and user's quality assurance. This does not only ensure that the optics were manufactured within the specification but also they meet the requirements when in use. The early detection of missproduction or incorrect handling in the manufacturing chain ensures that optics provide the highest performance.

The OpticsQualityMonitor compares the absorption of a translucent optical element, e.g. from a processing head (lens or flat optics), with the absorption of a reference optic (same type: material or refraction index, diameter, radii of curvature and anti-reflective coating). The temperature increase of the optics' surface is measured, which results from the laser power absorbed in the optics.

For productivity reasons, the beam powers used in laser material processing are getting higher and higher. This leads to an increasing thermal impact on the optics used in the processing heads, resulting for example in a power-dependent focus shift. The influence of the absorption properties and the degree of contamination of the individual elements is becoming increasingly important. This makes quality assurance even more important for manufacturers of optics and processing heads.



Centerpiece of the OQM: AbsorptionTestModule with QBH connector

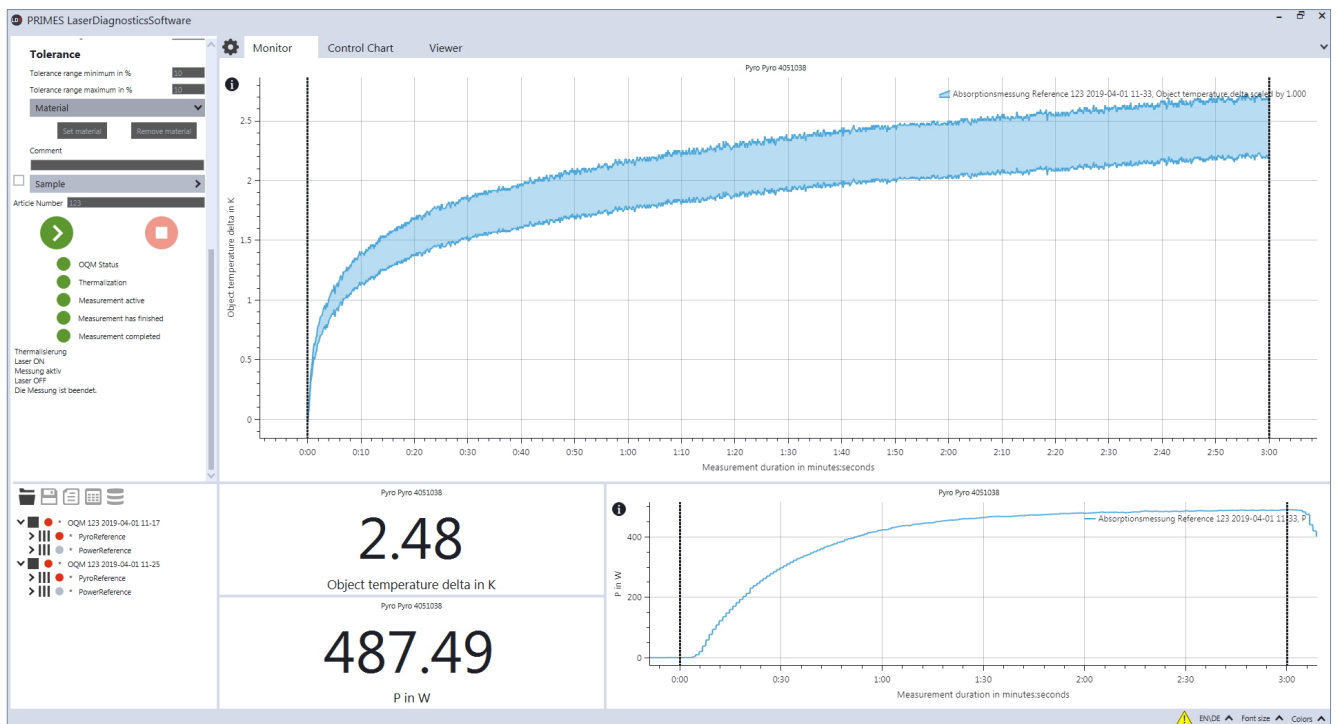
## Operation

The temperature measurement is contact free. Optics are not affected by the measurement itself or by their mounting during the measurement. Thus, the OQM in particular is suitable for the incoming- and outgoing goods inspection of optics employed in the high-power range.

The measurement of the temperature increase of the optical surface enables comparative statements with regard to the absorption of optics within a serial production, between

different serial productions or between the deliveries from different suppliers. The absolute absorption value, however, is not determined.

The OpticsQualityMonitor is supplied in a laser class 1 housing with an integrated laser and cooler. The device is intended for the operation in a cleanroom.



Graphical user interface of the LaserDiagnosticsSoftware LDS after successful sample measurement.



## Technical Data

MEASUREMENT PARAMETERS	
Laser power	max. 500 W
Wavelength of laser	1 050 – 1 250 nm
Test wavelength	1 070 nm
Beam dimensions	2 mm
Accuracy	± 300 mK
Reproducibility	± 100 mK
Test capacity	ca. 4 samples per hour
SUITABLE SAMPLES	
Max. sample diameter	60 mm
Max. sample thickness	25 mm
Min. Radius of curvature	12 mm
Transmittance	Transmissive
Coating	Anti-reflective coating required (suitable for the applied wavelength of the laser)
UNSUITABLE SAMPLES	
Focal lengths	55 mm to 115 mm <sup>1)</sup>
SUPPLY DATA	
Supply voltage (three-phase network)	400 V AC ± 5 %, max. 16 A
COMMUNICATION	
Interfaces	HDMI/USB (2x) Remote Control Ethernet
DIMENSIONS AND WEIGHT	
Dimensions (L x W x H)	1 060 x 880 x 1 635 mm (without signal lamp)
Weight (approx.)	340 kg
ENVIRONMENTAL CONDITIONS	
Operating temperature range	20 – 30 °C
Storage temperature range	5 – 45 °C
Reference temperature	24 °C
Permissible relative humidity (non-condensing)	10 – 80 %

<sup>1)</sup> With the optional adaptive sample holder, samples with a focal length of 55 mm to 115 mm can also be measured.