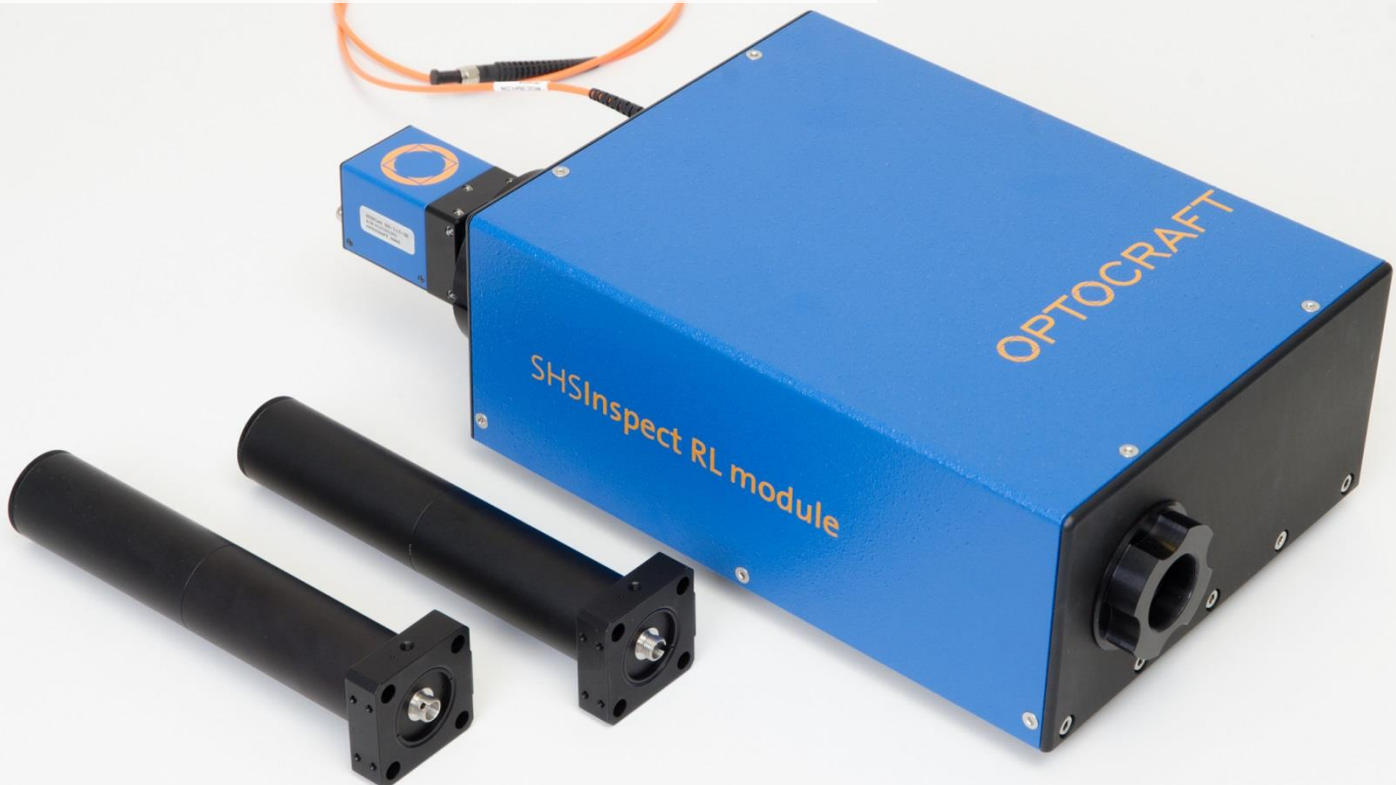


## SHSInspect RL module



The SHSInspect RL module is a versatile wavefront measurement tool for functional testing of optics in double pass or for surface measurements. It unites SHSLab wavefront sensor, light source and imaging optics in a single, compact device and can be easily integrated into table top set-ups, testing platforms or production lines.

### **Benefits:**

- Large variety of measurement configurations
- Modular illumination unit for easy wavelength change
- Well established calibration procedures for high accuracy measurements
- Wavefront sensor can be used separately

## SHSInspect RL module

### Illumination System

Operation wavelength VIS (400nm-700nm) or NIR (700nm-1050nm)

Exit pupil diameter 4.2mm / 10mm (plane wavefront)

### Mechanical Properties of RL module without SHSCam and additional optics

Dimensions (LxWxH) 275 x 180 x 90 mm<sup>3</sup>

Weight 4 kg

### Included Accessories

Cat's eye module Tilt calibration unit

Plano mirror  $\lambda/20$  PV on exit pupil diameter of RL module

### SHSLab (quoted separately, see separate data sheets for further information)

Lateral resolution 111 x 93 / 203 x 203 microlenses (SHSCam HR3/ UHR3)

Evaluation rate (typ.) 10Hz / 4Hz

Measurement accuracy Typical  $\lambda/20$  PV; depends on application and calibration method

Software SHSWorks Wavefront and Zernike analysis, PSF, MTF, Strehl ratio, etc.

### Performance of the RL module with SHSLab

Measurement accuracy Typical  $\lambda/20$  PV; depends on application and calibration method

Repeatability 2nm rms<sup>1</sup>

### Optional Accessories

Null lenses Microscope objectives with different NA available (up to NA=0.8)

Beam expander For adaption of the diameter of the collimated out-put beam

Beam expander support Mechanical support to stabilize beam expander in front of the module

Light sources LEDs with quick-change collimation unit for easy change of light source

Calibration flats For optics with large diameter

Reference spheres For double pass measurement of optics and for calibration of objectives

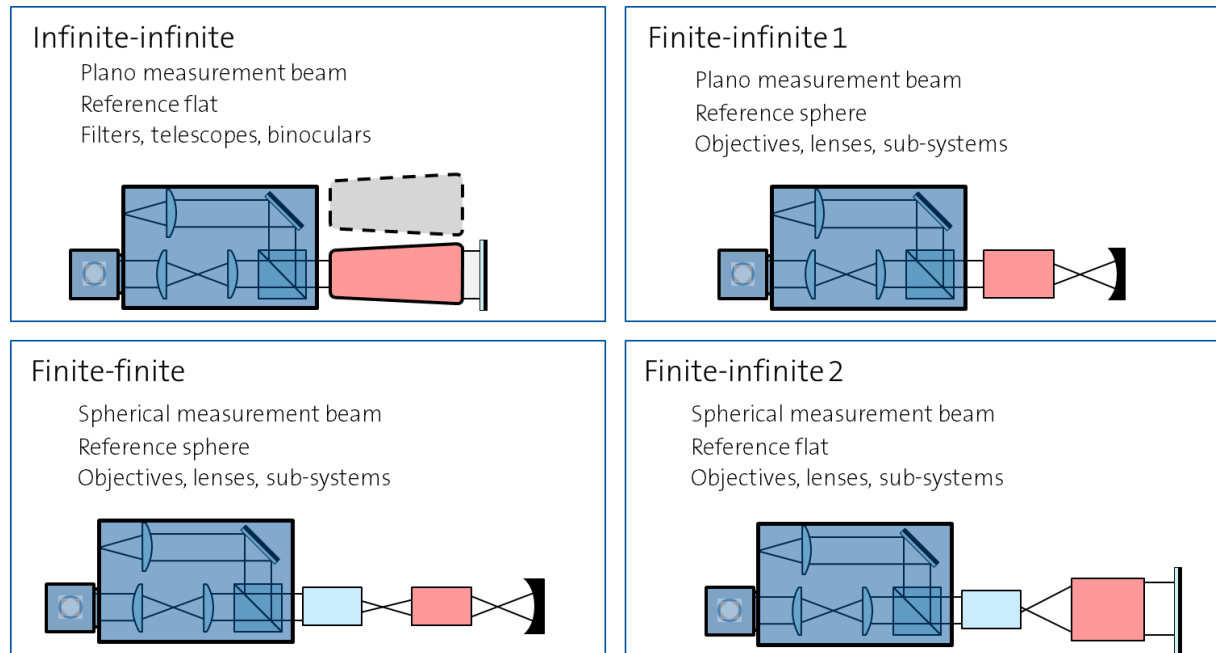
Workstation PC Notebook or desktop PC, pre-configured and tested

Customization of the RL module possible upon request:

- Other operation wavelength range (UV / SWIR)
- Other light sources (lasers, laser diodes)
- Other null lenses

<sup>1</sup> The repeatability is the difference between two successive wavefront measurements.

## Typical double pass configurations



## Overview of Options

Thread: SM1 (1.035"-40) or C-Mount  
 Pupil diameter (plane wavefront): 4.2mm or 10mm

1050nm
970 nm
850nm
740nm
660nm
625nm
565nm
530nm
505nm
470nm
455nm
405nm

SHSLab UHR3  
 SHSLab HR3

Notebook  
 Tower PC

Auxiliary lens	
On 4.2 mm pupil	On 10 mm pupil
NA 0.8	NA 0.5
NA 0.64	NA 0.28
NA 0.42	NA 0.19
NA 0.21	NA 0.1
NA 0.105	

Kepler-Telescope:  
 Exit pupil up to 70mm

Mechanical support for horizontal setup

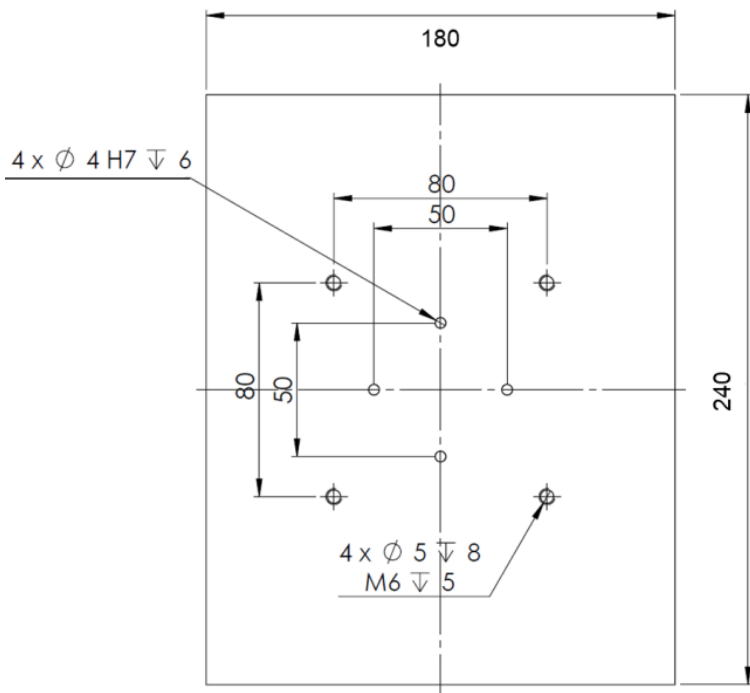
Plano mirror, Lambda/20, mounted in tip/tilt mount:  
 Diameter: 6"  
 Diameter: 4"  
 Diameter: 3"  
 Diameter: 2"

Reference Sphere:  
 NA up to 0.95

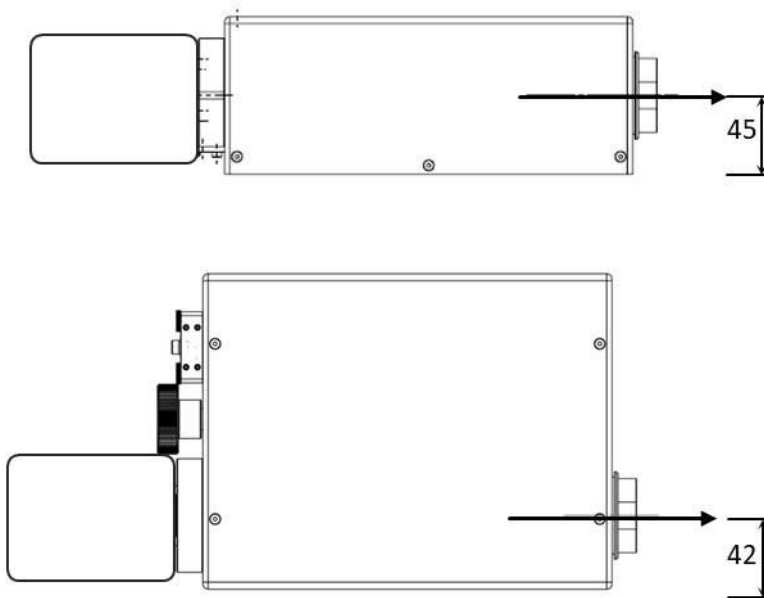
**Light Sources:** Different fibre-coupled LEDs available in combination with quick-change collimator tubes. When coupled to the RL module, all light sources will yield an output beam with a top hat like intensity profile and a plane wave-front profile.

**Microscope Objectives:** The objectives listed above are optimized for the VIS wavelength range. Further objectives for NIR range are available.

Schematic drawings



Base plate of the module and position of threaded holes.



Side- and top-view of the SHSInspect RL module, optical axis is indicated (SHSCam shown only schematically)