

## SHSInspect RL module – technical specification

The SHSInspect RL module is a versatile wavefront measurement tool for functional testing of optics in double pass or for surface measurements with SHSLab wavefront sensors. It can be used for integration into table top set-ups, testing platforms or production lines.



SHSInspect RL module	
<b>Illumination System<sup>1</sup></b>	
Operation wavelength	VIS (400nm-700nm) or NIR (650nm-1065nm), other optimization range upon request
Exit pupil diameter	4.2 mm/10 mm (plane wavefront)
<b>Mechanical Properties</b> (only RL module, without SHSCam and without additional optics)	
Dimensions (LxWxH)	275 x 180 x 90 mm <sup>3</sup>
Weight	4 kg
<b>Accessories</b>	
Cat's eye module	Tilt calibration unit
Plano mirror	lambda/20 PV on exit pupil diameter of RL module
<b>Optional</b>	
Calibration flat	For optics with large diameter
Calibration sphere	For double pass measurement of optics and for calibration of objectives
Beam shaper	Microscope Objectives with different NA available <sup>1</sup> .
Light sources <sup>1</sup>	LEDs with quick-change collimation unit for easy change of light source
Workstation PC	Notebook or desktop PC
<b>SHSLab</b> (quoted separately, see separate data sheets for further information)	
Lateral resolution	59 x 44 ... 116 x 116 microlenses (SHSCam HR / SHSCam UHR)
Evaluation rate	12 Hz / 4Hz
Measurement accuracy	depending on customer's application and calibration methods
Typical repeatability	3 nm rms <sup>2</sup>
Camera Bus	Gigabit Ethernet
Software SHSWorks	Wavefront and Zernike analysis, PSF, MTF, Strehl

<sup>1</sup> See p.2 for typical microscope objectives and light sources compatible with the module.

<sup>2</sup> The repeatability is the difference between two successive wavefront measurements.

## Optional accessories

### Microscope Objectives

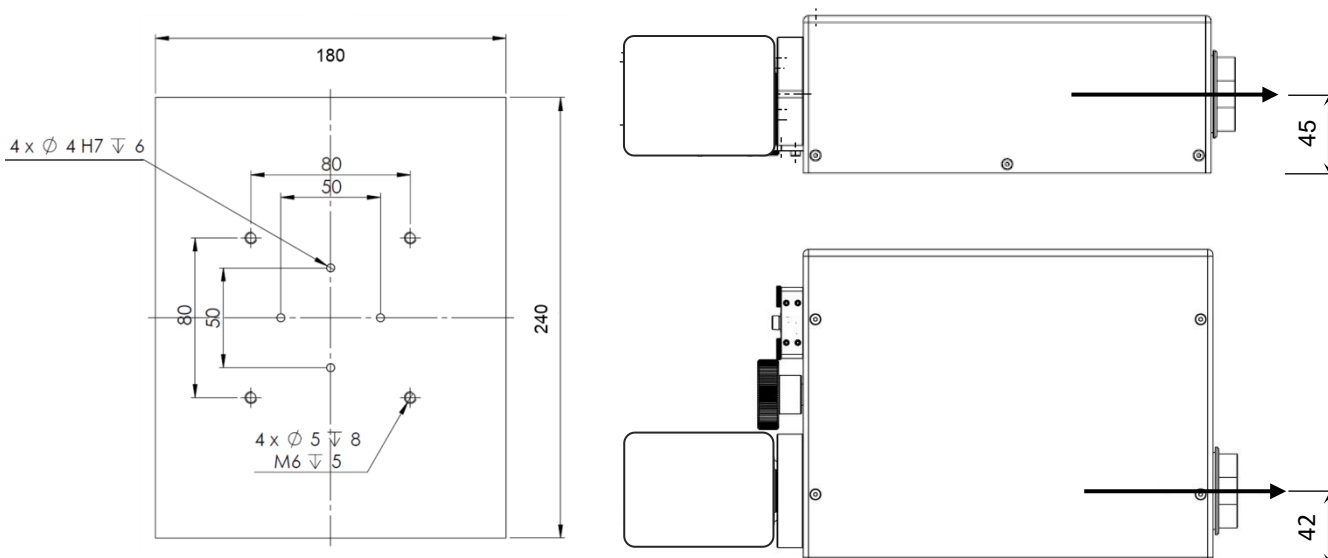
Microscope Objective	NA <sup>3</sup>	Wavelength	Working distance / mm	Parfocal length / mm	Focal length / mm	Magnification	Thread
Illuminated exit pupil diameter: 4.2 mm							
MO4.2 #1	0.21	400nm-700nm	6.9	45	10	20 X	M25
MO4.2 #2	0.42	400nm-700nm	0.37	45	5	40 X	M25
MO4.2 #3	0.64	400nm-700nm	1	45	3.3	50 X	M27
MO4.2 #4	0.8	400nm-700nm	0.17	45	2.6	63 X	M27
Illuminated exit pupil diameter: 10 mm							
MO10 #1	0.1	400nm-700nm	17.2	60	50	4 X	M25
MO10 #2	0.19	400nm-700nm	35	95	26.7	7.5 X	M26 x 0.706
MO10 #3	0.28	400nm-700nm	10	45	18	10 X	M26 x 0.706
MO10 #4	0.5	400nm-700nm	13	95	10	20X	M26 x 0.706

Examples for applicable microscope objectives. Further microscope objectives available, especially also in non-VIS ranges

### Light Sources

Different fiber-coupled LEDs available in combination with quick-change collimator tubes. Standard wavelengths: 405nm, 420nm, 455nm, 470nm, 505nm, 530nm, 595nm, 625nm, 660nm, 680nm, 740nm, 780nm, 850nm. Further light sources (laser diodes, LEDs) upon request. 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.

### Schematic drawings



A: Base plate of the module and position of threaded holes.

B: Side- and top-view of the module, optical axis is indicated. SHSCam is shown only schematically.

<sup>3</sup> Effective NA resulting from partial illumination of the objective.