



ZEISS Visioner 1

Specifications

Version: 2021-11



Seeing beyond

ZEISS Visioner 1 – Technical Specifications

System Components

Optical Unit	Containing the Micro-mirror Array Lens System (MALS™), camera, coaxial reflected light, optics (1.3x magnification), interface for LED ring light illuminator and bayonet interface for optional front optics.
LED ring light illuminators	Can be attached to optical unit.
Controller	Connected to the optical unit and LED ring lights to control the microscope via software.
Stands	Various mechanical stands: stand K, stand M and Base 300 with column 350 or profile column 490 with interfaces for optical unit and stages
PC	Containing the ZEN core for Visioner 1 software. Connected to optical unit via USB 3.
Software	ZEN core for Visioner 1 and optional Modules.
Front Optics	Connected to the optical unit via coded bayonet interface.
Stages	For base 300: Mechanical stage S 150x100 R, Mechanical stage S 150x100 mot. CAN, Measuring stage S 150x100 mot. CAN, with insert plates S 237x157x3 metal, with breadboard, with insert 84 for ball-and-socket stage and for O-Select palette. For all stands: Gliding stage, ball-and-socket-stage and spacer plate
Foot switch	Connected to PC via USB 2 for hands-free image acquisition.

Technical Data

Microscope Type	Digital Microscope
Technology	Micro-mirror Array Lens System (MALS™) for Extended Depth of Field (EDF), height map, and surface topography view
Maximum Magnification	336x (with respect to a 24" display diagonal and an aspect ratio of 16:9, 2.5x front lens , FoV 800 x 600 pixels)
Camera	Integrated 3 MP color camera Maximum image size: 2048 x 1536 pixel (live and snap mode) Minimum image size: 800 x 600 pixel (live and snap mode)
Optics	Integrated optics (1.3x magnification) Optional front optics (2.5x, 1.8x telecentric, 1.2x telecentric, 0.75x and 0.35x magnification)
Illumination	Integrated coaxial LED epi-illumination LED ring light illuminator with 3 rings and 8 segments (supports glare removal) Optional LED ring light illuminator with 1 ring (optimized for 2.5x and 1.8x telecentric magnification, supports glare removal)
Interfaces	Stand (d = 76 mm) Illuminator (d = 66 mm) Front lens (coded bayonet)
Software	ZEN core for Visioner 1 with module Measurement Optional ZEN core modules: Online Measurement, Image Analysis, Connect, GxP, Intellesis, Data Storage, Layer Thickness, Multiphase, Advanced Processing, CAD Import, Macro Environment, Third-party Import, QUAL Data Export Optional ZEISS ZAPHIRE offline evaluation software for automated measurements in 2D. Optional Confomap software for advanced analysis in 3D
PC	Operating System: Windows 10 Enterprise LTSC 2019 x64
Maximum EDF Acquisition Speed	Up to 15 vps ⁽¹⁾

1) vps = volumes per second

Magnification	Minimum Resolution (measured)	Maximum Field of view	Minimum Working distance without LED ring light illuminators	Minimum Working distance with LED ring light illuminators	LED ring light illuminators and adapters	Depth of Field (DoF) (optics defined)	Maximum Extended Depth of Field (EDF)
2.5x	7.8 µm	2.8 x 2.1 mm	16 mm	10 mm	1-ring	39 µm	1.8 mm
1.8x telecentric	10.0 µm	3.9 x 2.9 mm	25 mm	17 mm	1-ring	74 µm	3.6 mm
				12 mm	3-ring		
1.3x	15.6 µm	5.3 x 4.0 mm	43 mm	21 mm	3-ring	138 µm	6.4 mm
1.2x telecentric	14.3 µm	5.9 x 4.4 mm	37 mm	36 mm	3-ring	168 µm	8.2 mm
0.75x	25.0 µm	9.1 x 6.8 mm	61 mm	10 mm	3-ring +37 mm adapter	421 µm	19.9 mm
0.35x	62.5 µm	20.1 x 15.1 mm	119 mm	32 mm	3-ring +73 mm adapter	1910 µm	69.4 mm

For measurements with the 2D Acquisition workbench, the following MPE values compliant with ISO 10360-7:2011 are specified:

Magnification	2.5x	1.8x telecentric	1.3x	1.2x telecentric
$E_{UV,MPE}$ in µm	$1.5 + L/200$ ⁽¹⁾	$3 + L/100$ ⁽²⁾	$5 + L/100$ ⁽³⁾	$5 + L/100$ ⁽⁴⁾

Air Conditioning and Quality

Parameter Value Heat Dissipation	Max. 230 W
Warm-up time	0.25 h
Temperature for operation	+10 to +35 °C
Relative humidity	< 75 % at 35 °C
Air pressure	800 hPa to 1060 hPa
Height above sea level	Max. 2000 m
Pollution degree	2

Mains connection

Nominal AC voltage	100–240 VAC ± 10%
Nominal frequency	50–60 Hz
Power consumption	Max. 340 VA
Max. current	2.22 A at 36 VDC (power supply of controller) 25 mA at 24 VDC (power supply of converter CAN - USB Rev. 2)
Protection class	IP20 (IEC 60529)
Overvoltage Category	II

1) measured with 1-Ring-LED illumination for L < 2250 µm, ZEISS ZAPHIRE offline evaluation

2) measured with 3-Ring-LED illumination for L < 3500 µm, ZEISS ZAPHIRE offline evaluation

3) measured with 3-Ring-LED illumination for L < 4500 µm, ZEISS ZAPHIRE offline evaluation

4) measured with 3-Ring-LED illumination for L < 4500 µm, ZEISS ZAPHIRE offline evaluation



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