TopMap Micro.View®+ / Micro.View®+ Compact

TopMap Micro.View®+ is the next generation optical surface profiler. Designed for modularity, this comprehensive workstation allows for customized and application-specific configurations. The Micro.View®+ delivers the most detailed analysis of surface roughness, texture and micro-structure topography. Combine 3D data with color information for amazing vizualizations and extended analysis like detailed documentation of defects. The high-resolution 5 MP camera delivers incredibly detailed 3D data vizualization of engineered surfaces.

The encoded and motorized turret secures a seamless transition between objectives. Micro.View®+ features the latest Focus Finder plus Focus Tracker, keeping the surface in focus at all circumstances. The fully motorized sample positioning stages allow for stitching and automation.

Highlights

- High-end white-light interfero-meter with nm resolution
- 100 mm z measurement range with CST Continuous Scanning Technology
- With Focus Finder and Focus Tracker ready for automation
- Motorized X, Y, Z, tip/tilt and turret save repositioning
- Color information mode for extended analysis and documentation of defects
- Modular, application-specific configurations

TopMap Micro.View®+

Next generation optical surface profiler

Datasheet

Technical data

The information for the optical profiler TopMap Micro.View®+ (TMS-2400) complies with the *Fair Data Sheet* initiative for optical surface measurement devices. Additional specs are highlighted in blue.

Initiative Fair Data Sheet

Advanced performance as table-top version: Micro.View+ Compact

General features	
Working principle	Coherence scanning interferometry
Nominal vertical measurement range in a single measurement	100 mm
Positioning range of workpiece [1] Micro.View+ Micro.View+ Compact	 X = 200 mm, Y = 200 mm, Z = 100 mm X = 75 mm, Y = 75 mm, Z = 100 mm
Max. number of measuring points in a single measurement	N_x: 1592; N_y: 1200; N_{xy}: 1910400
Max. number of measuring points in a stitched measurement	$N_{xy,max}$ = 500 million
Surface reflectivity	Works on any surface from shiny to scattering (Reflectivity 100% to 0.05%)

General specifications	Micro.View+	Micro.View+ Compact
Dimensions [L x W x H]		
Controler	314 x 142 x 230 mm³	integrated into stand
Stand	980 x 548 x 372 mm³	520 x 575 x 540 mm³
Sensor head	270 x 440 x 182 mm³	270 x 440 x 182 mm³
Weight		
Controller	3.6 kg	integrated into stand
Stand [1]	60 kg	26 kg
Sensor head [2]	12.8 kg	12.8 kg
Recommended temperature range for measurement	20 ±3 °C	
Permissible temperature gradient	1 K/h	
Operation/Storage temperature	+10 °C ... +35 °C (50 °F ... 95 °F) / -10 °C ... +65 °C (14 °F ... 149 °F)	
Relative humidity	max. 80 %, non-condensing	
Power	100 ... 240 VAC ±10 %, 50/60 Hz, 100 W system + 120 W PC	

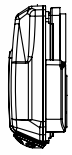
Configuration possibilities	
Hardware included	Manual tip-tilt stage, encoded turret, precision Z drive with CST Continous Scanning Technology, integrated vibration isolation (Micro.View+ Compact only)
Hardware options	Objectives, positioning stages: manual xy and motorized xy, advanced Focus Finder, joystick, barcode reader, calibration sets, active vibration isolation breadboard
Software included	3D data acquisition with multiple operation modes, SST Smart Scanning Technology, 2D/3D data evaluation features, ISO roughness analysis (ISO 25178, ISO 4287, ISO 4288, ISO 21920, ASME B46.1), automation with recipes, easy wizard, pre-scan, critical dimensions
Software options	ECT Enviromental Compensation Technology, QC Quality Control package, operator interface, pattern matching, software customization, MountainsMap

[1] With optional XY-positioning stage
[2] Without objectives
[3] Limited by objective working distance and workpiece geometry
[4] Standard system, height spacers optional
[5] According to Rayleigh criterion, related to a central wavelength of 525 nm
[6] Evaluation of the correlogram phase
[7] Based on DIN EN ISO 25178-700, 30 measurements at 11.3 µm/sec, on a parallelly aligned plane mirror (R > 93%, λ/10). Postprocessing: levelling, 5 x 5 spike-removal, high pass filter λc = FoV width/4, no denoising
[8] According to DIN EN ISO 25178-604:2013-12, 30 measurements at 11.3 µm/s (10x objective) on a parallelly aligned plane mirror (R > 93%, λ/10). Postprocessing: levelling, 3x3 median filter denoising, 5 x 5 spike-removal.
[9] Repeatability of the individual RMS values from the surface topograhy repeatabilty measurement
[10] 15 measurements per step at 11.3 µm/s, on a calibrated depth setting standard, type KNT 4080/03 (ISO 5436-1), in various sections of the 100 mm nominal vertical measurement range.
[11] 15 measurements at 11.3 µm/s (4x objective) on a calibrated gauge block of precision class K (contact bonded on an optical flat).
[12] Standard deviation of the measured step height under repeatability conditions

Objective-specific features										
	0.6x	**2.5x**	**5x**	**10x**	**20x**	**50x**	**100x**	**111x**	**4x LWD**	**10x SLWD**
Measurement area in a single measurement										
X [mm]	15.53	3.73	1.87	0.93	0.47	0.19	0.09	0.08	2.33	0.93
Y [mm]	11.71	2.81	1.41	0.7	0.35	0.14	0.007	0.06	1.76	0.7
X · Y [mm²]	181.83	10.50	2.62	0.66	0.164	0.026	0.007	0.005	4.10	0.66
Extended lateral measurement range (stitching) [1]										
Maximum area [mm²]										
Micro.View+	40000	2737	684	171	42	6	1	1	1069	171
Micro.View+ Compact	5625	2737	684	171	42	6	1	1	1069	171
Maximum undirectional length [mm]										
Micro.View+						200				
Micro.View+ Compact						75				
Working distance [mm]	9.2	10.3	9.3	7.4	4.7	3.4	2	0.7	27	28
Usable vertical measuring range [3] [mm]	9.2	10.3	9.3	7.4	4.7	3.4	2	0.7	27	8.6
Maximum workpiece height [4] [mm]	22.5	60	100	100	100	100	100	100	42	8.6
Numerical aperture	0.015	0.075	0.13	0.30	0.40	0.55	0.70	0.80	0.10	0.18
Maximum measurable local slope α	0.86°	4.30°	7.47°	17.46°	23.58°	33.37°	44.43°	53.10°	5.74°	10.37°
Measuring point spacing Δ_x/Δ_y [µm]	9.76	2.34	1.17	0.59	0.29	0.12	0.06	0.05	1.47	0.59
Calculated lateral optical resolution δ_L [5] [µm]	21.35	4.27	2.46	1.07	0.80	0.58	0.46	0.40	3.20	1.78
Measurement noise N_M [6,7]	< 0.3 nm									
Digital resolution	0.01 nm									
Surface topography repeatability [6,8]	< 0.1 nm									
Repeatability of RMS [9]	< 0.01 nm									
Maximum deviation of a step height measurement	7.5 µm step: 0.1 µm [10] 75 µm step: 0.1 µm [10] 20000 µm step: 3.0 µm [11]									
Step height measurement repeatability [12]	7.5 µm step: 0.55 % 75 µm step: 0.05 % 20000 µm step: 0.00025 %									
Flatness deviation z_{FLT} [6]	< 5 nm									
Flatness measurement repeatability [6]	< 0.5 nm									

Other features	
Color image	Color information mode available as hardware option
Optical setup	Microscope system; Light source: long-life LED, 525 nm
Data formats	Topography formats: SUR, ASCII, STL, X3P Export formats: qs-STAT, PDF, BMP, PNG, TIFF, GIF

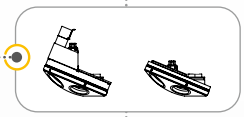
Configuration of the optical profiler



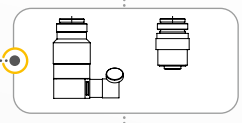
Micro.View®+ Compact

Sensor head with
Focus Finder option

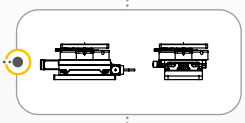
Motorized or
manual turret



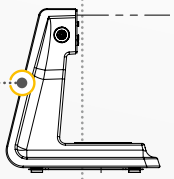
Objectives



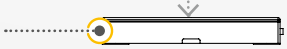
Different positioning
stages, manual XY
or motorized XY
75 mm x 75 mm,
including tip-tilt



Base stand

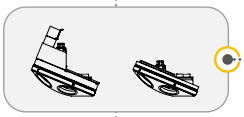


Active vibration
isolation platform

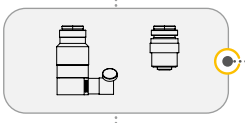


Micro.View®+

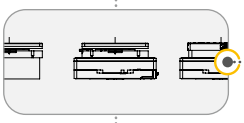
Micro.View®+ sensor
head, standard or 5 MP
camera, with or without
color information, with
or without Focus Finder



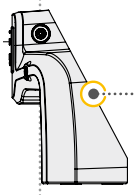
Motorized or
manual turret



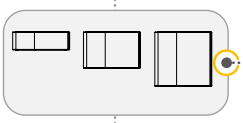
Objectives



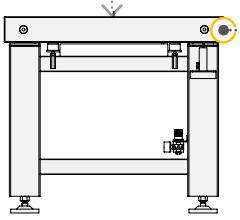
Positioning stage
motorized XY
200 mm x 200 mm,
manual or motorized tip-tilt



Stand



Spacers for
sample heights
up to 370 mm



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or electronically controlled

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