TopMap Micro.View® is an easy to use and compact optical profiler. Combine exceptional performance and affordability with this powerful metrology solution. This white-light interferometer with an extended 100 mm z measurement range with Continuous Scanning Technology (CST) allows complex topographies to be measured at nm resolution. This convenient table-top setup features integrated electronics, with the smart focus finder simplifying and speeding up the measurement procedure.

Benefit from the optional ECT Environmental Compensation Technology, enabling reliable and accurate measurement results even in noisy and challenging production environments. Micro.View® is the cost-effective quality control instrument for inspecting precision engineered surfaces in the field of manufacturing and research.

Highlights

- Measure surface finish in a compact setup
- Non-contact measurement of 3D topography, roughness and texture
- 100 mm Z measurement range with CST Continuous Scanning Technology
- Excellent lateral resolution
- Determine surface defects
- Choose from application-specific objectives 0.6x – 111x

TopMap Micro.View®

Table-top optical surface profiler

Datasheet

Technical data

Initiative Fair Data Sheet

The information for the optical profiler TopMap Micro.View® (TMS-1400) complies with the *Fair Data Sheet* initiative for optical surface measurement devices. Additional specs are highlighted in blue.

General features	
Working principle	Coherence scanning interferometry
Nominal vertical measurement range in a single measurement	100 mm
Positioning range of workpiece [1]	X = 75 mm, Y = 75 mm, Z = 100 mm
Max. number of measuring points in a single measurement	N_x: 1352; N_y: 1000; N_{xy}: 1352000
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	
Dimensions [L x W x H] Stand Sensor head	 520 x 575 x 540 mm³ 270 x 440 x 182 mm³
Weight Stand [1] Sensor head [2]	 26 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

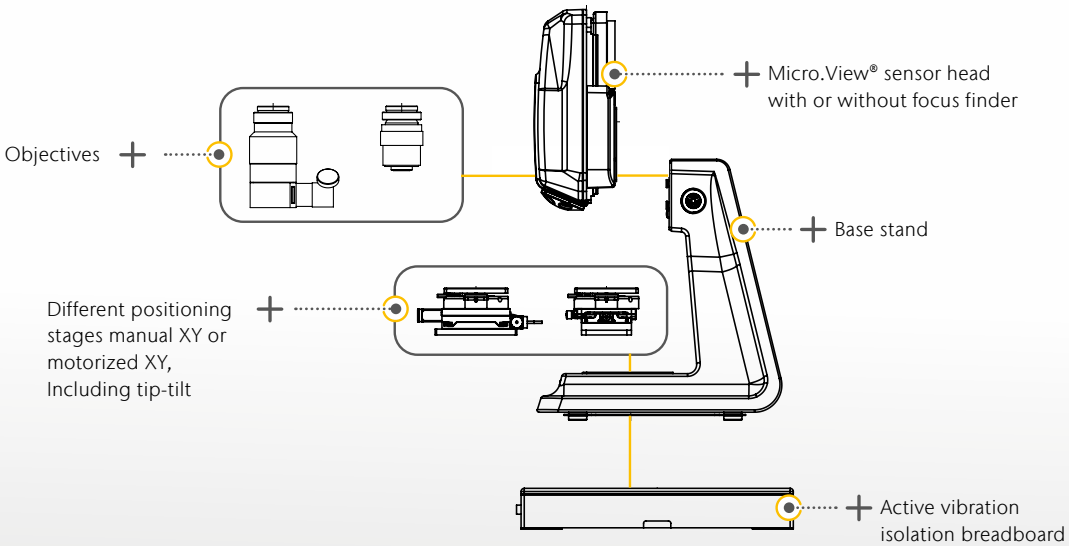
Configuration possibilities	
Hardware included	Manual tip-tilt stage, encoded turret, precision Z drive with CST Continous Scanning Technology, integrated vibration isolation
Hardware options	Objectives, positioning stages: manual xy and motorized xy, advanced Focus Finder, joystick, barcode reader, 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 17.2 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 17.2 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 17.2 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 17.2 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]	13.19	3.17	1.59	0.79	0.39	0.16	0.08	0.07	1.98	0.79
Y [mm]	9.76	2.34	1.17	0.58	0.29	0.12	0.06	0.05	1.47	0.58
X · Y [mm²]	128.69	7.43	1.86	0.46	0.12	0.019	0.005	0.004	2.90	0.46
Extended lateral measurement range (stitching) [1]										
Maximum area [mm²]	5625	2737	684	171	42	6	1	1	1069	171
Maximum undirectional length [mm]	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]	< 0.6 nm									
Digital resolution	0.01 nm									
Surface topography repeatability [6,8]	< 0.2 nm									
Repeatability of RMS [9]	< 0.05 nm									
Maximum deviation of a step height measurement	7.5 µm step: 0.3 µm [10] 75 µm step: 0.7 µm [10] 20000 µm step: 5.0 µm [11]									
Step height measurement repeatability [12]	7.5 µm step: 1.6 % 75 µm step: 0.2 % 20000 µm step: 0.003 %									
Flatness deviation z_{FLT} [6]	< 5 nm									
Flatness measurement repeatability [6]	< 0.5 nm									

Other features	
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



Shaping the future since 1967

High tech for research and industry.
Pioneers. Innovators. Perfectionists.

Find your Polytec representative:
www.polytec.com/contact

Polytec GmbH · Germany
Polytec-Platz 1-7 · 76337 Waldbronn