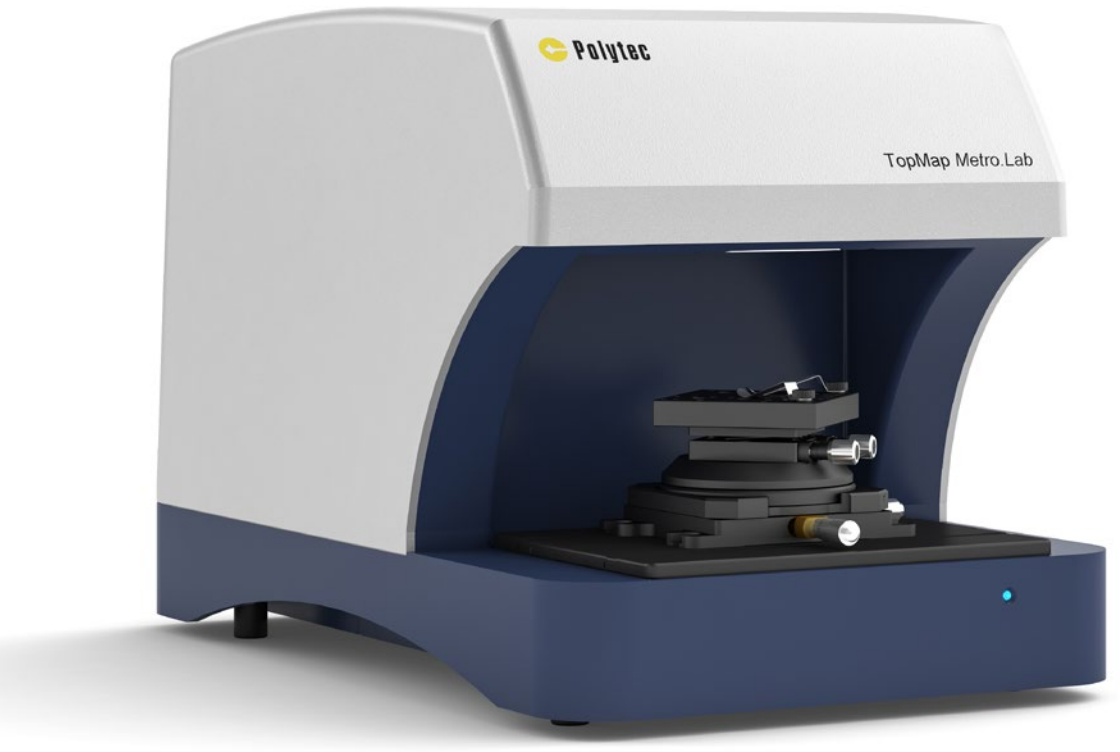
The TMS-150 TopMap Metro.Lab from Polytec is a precision white-light interferometer with a large vertical measurement range, large field of view and nanometer resolution. The compact 3D workstation easily measures without contact flatness, step height and parallelism of large surfaces and structures on even soft and delicate materials.



Highlights

- Non-contact, optical measurement principle
- Fast measurement over large field of views up to 87 x 78 mm²
- Easy-to-use and automatable software for DIN ISO compliant parameters
- Smart Surface Scan technique copes with different contrast (reflectivity) levels

TopMap Metro.Lab

Non-contact 3D topography

Datasheet

Technical data

Initiative Fair Data Sheet

The information for the model TMS-150 TopMap Metro.Lab comply with the initiative "Fair Data Sheet" for optical surface measurement devices.

General features	
Positioning volume	87 x 78 x 70 mm = 0.00048 m^3
Max. number of points in a single measurement	X: 1284, Y: 966, X.Y: 1240344
Maximum number of measuring points	X: 2969, Y: 2662, X.Y: 7903478
Objective-specific features	
Measuring area	X: 37 mm, Y: 28 mm, X.Y: 1036 mm^2
Working distance	2.5 (-2.5/+5) mm
Vertical measuring range	70 mm
Measuring point spacing	X: 29.3 µm Y: 29.3 µm
Calculated lateral optical resolution	21.4 µm
Extended measuring range	
Extended lateral range	87 mm x 78 mm
Extended measuring area with data reduction	87 mm x 78 mm
Extended vertical range	Corresponds with vertical measuring range
Performance features	
Measurement noise	1 nm (phase evaluation)
Vertical resolution	2.83 nm (phase evaluation)
General specifications	
Dimensions [L x W x H]	580 mm x 340 mm x 372 mm
Weight	ca. 27 kg
Power	100 ... 240 VAC ± 10 %, 50/60 Hz; max. 40 W
Ambient temperature range	20 ±3 °C
Operation/storage temperatur	+5 °C ... +35 °C / -10 °C... +65 °C
Relative humidity	max. 80 %, non-condensing
Photobiological safety	IEC/EN 62471:2009-03
Electrical safety	IEC/EN 61010-1:2011-07; EMV: IEC/EN 61326:2006-10
Scope of delivery	Interferometer, controller, industiral PC with TFT-monitor, connection cable, 1 reference filter, TMS software with hardlock (Dongle)

Other features						
Measuring principle	Scanning white-light interferometry (Michelson)					
Optical setup	Telecentric; light source: long-life LED, 525 nm					
Data formats	Topography formats: SUR, ASCII Export formats: qs-STAT, PDF, BMP, PNG, TIFF, GIF					
Application-specific features						
Typical flatness measurement (single field measurement)[1]						
Flatness deviation	Smooth surfaces[2]: < 100 nm, rough surfaces[3]: < 375 nm					
Reproducibility[5]	Smooth surfaces[2]: < 20 nm, rough surfaces[3]: < 50 nm					
Typical step height measurement[4]						
Nominal step height	5 µm	50 µm	450 µm	1000 µm	2000 µm	5000 µm
Reproducibility[5 6]	0.40 µm	0.30 µm	0.25 µm	0.30 µm	0.25 µm	0.25 µm
Maximum deviation of a step height measurement[6]	0.47 µm	3.53 µm	7.30 µm	5.53 µm	5.07 µm	6.18 µm

[1] [1] Rounded values derived by empirical measurement data and a statistical evaluation of the measured flatness for several TMS-150 TopMap Metro.Lab at different sample increments and for both correlogram evaluation procedures. Measurements on a plane mirror (95% of the maximum field of view used).
[2] Evaluation of the correlogram phase
[3] Evaluation of the correlogram envelope
[4] Empirically determined representative performance for measurements on a calibrated PTB depth setting standard type A1 (ISO 5436-1).
[5] Variation of the measurement values for a series of measurements under repeatability conditions, averaged for several measurement devices.
[6] 21 measurements under reproducibility conditions.

Automated sample detection:
The automated sample detection enables easy measurements without the need for mechanical fixture.
The multi-sample measurement makes pass-fail analysis more efficient.

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2019/04 - Technical specifications are subject to change without notice.