

Measuring microscope MS1

Revision No.: 10



Portable measuring microscope with coaxial and angular incident illumination of high quality.



Technische
Mikroskopie

The portable microscope MS1 with stable, eloxal coated aluminium tube is used for inspection or measurement of products directly at the customer. The focus is done with a knurled ring. The focus range is ± 4 mm.

Due to the coaxial incident illumination with a beam splitter in the tube, even fine structures of smooth surfaces can be inspected at high magnification.

Angular illumination enables to inspect rough or fibrous structures (only applicable by using the lenses OP1-AL02 up to OP1-AL10).

The LED illumination is directly adjustable by the transformer TR7-N (220 or 110 V).



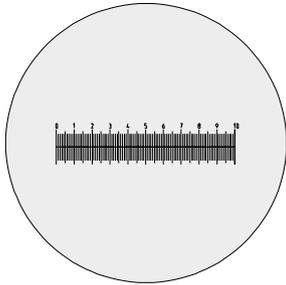
The flexible lamp holder enables an optimal setting of the angular illumination.



For independent operation from the electric main power, a LED battery lamp is available.



With achromatic incident light objectives combined with eye-pieces or measuring eye-pieces, taken out of our standard microscope component program, high magnifications up to 800:1 are possible.



In the measuring eye-piece **MWF10XL/10** a micrometer scale with 100 lines is built in.



For precise distance measurement, a screw micrometer eye-piece **SM15** (here as **SMT15** with digital gauge) can be supplied. The resolution of the gauge is 1 µm.



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Magnifications, fields of view, measurement resolutions

lenses	eye-pieces			measurement eye-piece		video camera
	WF10XL	WF15XL	WFP20x	WF10XL/10 scale		VM4-USB
OP1-AL02	20:1 8.9 mm	30:1 7.4 mm	40:1 7 mm	20:1 8.9 mm	100 x 0.05 mm	100:1 * 3.8 x 3.05 mm
OP1-AL05	50:1 3.6 mm	75:1 2.9 mm	100:1 2.8 mm	50:1 3.6 mm	100 x 0.02 mm	200:1 * 1.55 x 1.25 mm
OP1-AL10	100:1 1.8 mm	150:1 1.5 mm	200:1 1.4 mm	100:1 1.8 mm	100 x 0.01 mm	400:1 * 0.75 x 0.62 mm
OP1-AL20	200:1 0.9 mm	300:1 0.75 mm	400:1 0.7 mm	200:1 0.9 mm	100 x 0.005 mm	800:1 * 0.38 x 0.30 mm
OP1-AL40	400:1 0.45 mm	600:1 0.37 mm	800:1 0.35 mm	400:1 0.45 mm	100 x 0.0025 mm	1600:1 * 0.19 x 0.14 mm

* Calculated for a view with a 15" display.



A tube with integrated digital Z-measurement (linear glass scale) is available for depth measurement. The digital read out can be swiveled 90° for horizontal and vertical view.

Resolution: 0.001 mm

The measuring accuracy also depends also from the sharpness depth of the used lens.

Order-No. MS1-Zxxx

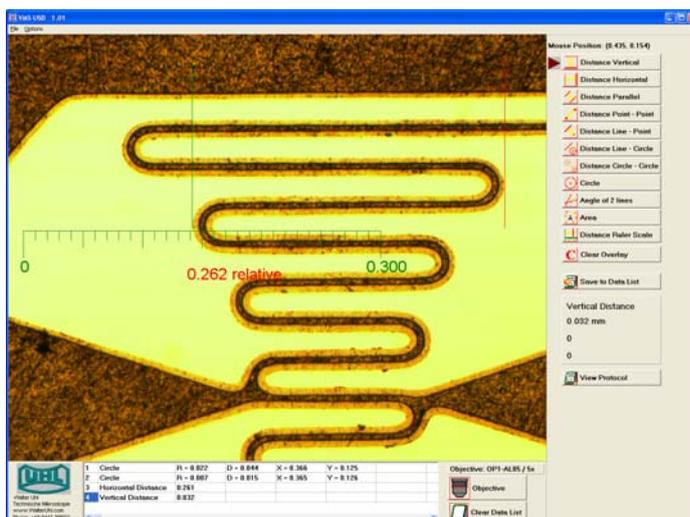
Objective	theoretical sharpness depth (mm)
OP1-AL05	0,028
OP1-AL10	0,004
OP1-AL20	0,002
OP1-AL40	0,001



Optional the MS1 can be equipped with a video-camera to store images or view live image.

For example: MS1 with LED-illumination and CMOS color camera with USB 2.0 interface, connected to a notebook for power autonomous usage.

Order-No. VM4-USB



Combined with the manual measurement software **VMS-USB** various applications from picture documentation up to high accurate measurement are possible.

The geometric elements point / line / circle and distances can be measured and stored in a text protocol. For documentation the video image including the measured value, the measuring lines and a comment can be stored.



Ordering code MS1:

MS1-O251

Illuminations

- 1 - MS1-LEDT+ TR7-N** LED-illumination with transformer
- 2 - MS1-LED** LED-illumination for main power independent operation
- 3 - 1 and 2** Combination of both types

Incident light objectives

	Magnification	Focal length	Aperture	Working distance
3 - OP1.AL02*	2:1	75.59	0.08	5.0
5 - OP1.AL05	5:1	25.39	0.10	18.5
1 - OP1.AL10	10:1	16.56	0.25	6.7
2 - OP1.AL20*	20:1	7.84	0.40	1.8
4 - OP1.AL40*	40:1	4.52	0.65	0.6

* only for coaxial incident light

Eye-pieces, measuring eye-pieces and camera

- 2 - WF10XL** Wide-field eye-piece
- 3 - WF15XL** Wide-field eye-piece
- 4 - WFP20x** Wide-field eye-piece plane
- 5 - WF10XL/10** Micrometer wide-field eye-piece 10 mm/100
- 6 - SM15x** Screw micrometer eye-piece mechanical
- 7 - SMT15x** Screw micrometer eye-piece with digital protractor eye-piece, resolution 0,001 mm
- 8 - WMOK-MS1** Angle-measuring eye-piece, resolution 20 min
- 9 - VM4-USB** USB 2.0 color camera with CMOS-sensor (resolution 1280x1024 pixel max. 18 frames / sec.) incl. PC-software for storing images or viewing the live image

Main units

- O** Transportable measuring microscope MS1 for eye-pieces
- V** Transportable measuring microscope MS1 for eye-pieces and video camera
- Z** Transportable measuring microscope MS1 with Z-measurement for eye-pieces and video camera

Example configuration

MS1-O211 Transportable microscope for inspection with base stand, wide-field eye-piece, incident light objective and transformer. Magnification 100x, field of view 1,6 mm.
MS1-Oxxx, WF10XL, OP1-AL10, TR7-N



Accessories	Order No.:	
	VMS-USB	Video measuring software for VM4-USB
	MS1.002V	Plastic probe protection ring for the stand
	MS1-TK	Transport box

To inspect or measure structures of round products (e.g. print cylinders or pipes) a roll stand is available.

Roll diameter: 50 - 200 mm

Order No. MS1-RF



Specifications are about to change without notice!

