

Measuring Microscope MS1

Revision No.: 13



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** (110-220 V).



MS1-LEDT

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



MS1-504 + MS1-504R

The adjustable LED illumination control with rechargeable battery is available as premium solution.

Additionally a LED ringlight can also be connected.

The light control is changed by the integrated switch.

The battery can be recharged with the supplied charger directly connected to the instrument.

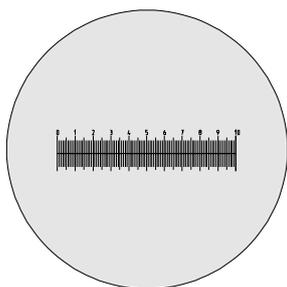
For independent operation from the electric main power, a LED battery lamp is available.



MS1-LED



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.



Magnifications, fields of view, measurement resolutions

lenses	eye-pieces			measurement eye-piece		video cameras	
	WF10XL	WF15XL	WFP20x	WF10XL/10	scale	VM4-USB	MS1-CAM
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	85:1 * 3,10 x 2,30 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	170:1 * 1,24 x 0,92 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	340:1 * 0,62 x 0,46 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	680:1 * 0,31 x 0,23 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	1360:1 * 0,16 x 0,12 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 3.0 interface, connected to a tablet for power autonomous usage.

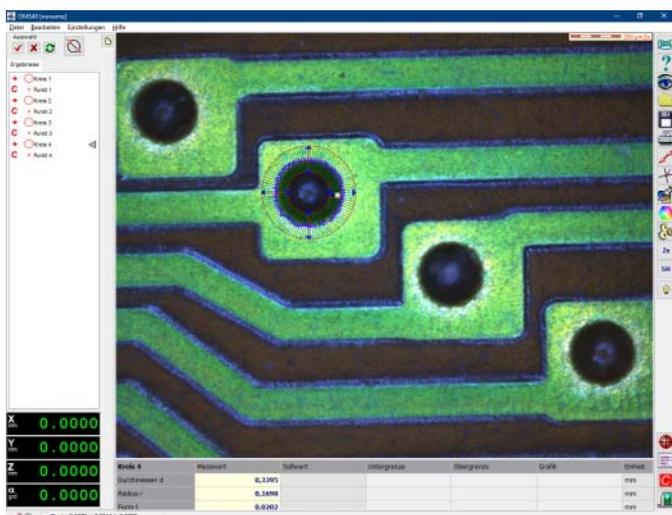
Order-No. VM4-USB



Another option is a modified action camera GoPro Hero7 with C-Mount connection. This can be connected to a iOS or Android device for wireless image transfer.

E.g. a MS1 with LED illumination and the WiFi camera connected to an iPhone® for power autonomous usage is shown.

Order-No. MS1-CAM



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

The geometric elements point / line / circle and distances can be measured and combined very flexible.

The measurement values can be stored in a text protocol or exported in combination with the video image plus geometry elements as RTF/PDF or JPG/BMP file.

The values can also be exported as CSV textfile for further calculations in a spreadsheet software.



MS1-O215

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
- 4 - MS1-504** coaxial incident light with rechargeable battery
- 5 - MS1-504 + MS1-504R** coaxial incident light with rechargeable battery and LED ringlight

Incident light objectives

	Magnification	Focal length	Aperture	Working distance
3 - OP1-AL02**	2:1	75.59	0.08	18.5
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 ** not for coaxial incident light

Eye-pieces, measuring eye-pieces and cameras

- 1 - MS1-CAM** WiFi-Kamera
- 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
- 8 - WMOK-MS1** Angle-measuring eye-piece, resolution 20 min
- 9 - VM4-USB** USB 3.0 color camera with CMOS-sensor (resolution 2048x1536 pixel max. 58 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

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Example configurations

MS1-O215 Transportable microscope for inspection with base stand, wide-field eye-piece, incident light objective, ring light, and rechargeable battery illumination.
Magnification 100x, field of view 1,6 mm.
MS1-O, WF10XL, OP1-AL10, MS1-504 + MS1-504R

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-O, WF10XL, OP1-AL10, TR7-N



Accessories**Order No.:**

OMS-LT	Video measuring software for VM4-USB
MS1.002V	Plastic probe protection ring for the stand
MS1-TK	Transport box for measuring microscope MS1 with transformer
MS1-TKK	Transport box (small) for measuring microscope MS1 with battery lamp
MS1-CM	C-Mount adaptor
MS1-CX	Adaptor C-Mount to „Nikon 1“ bayonet, suitable for Nikon system cameras with CX-sensor (series S, J, V and AW)
MS1-MFT	Adaptor C-Mount to „Micro Four Thirds“ bayonet, for Olympus and Panasonic system cameras with MFT sensor (Olympus EP and OM-D, Panasonic Lumix DMC-G) Note: Due to the sensor size, the image is vignettet!

Example: **MS1-CM + MS1-MFT**



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. MS1-003



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Specifications are about to change without notice!

