**MA100N**

The MA100N is a compact inverted microscope designated for bright field and simple polarizing observations. This model offers cost-effective solution to manufacturing and QA/QC situations in industries, such as automotive/electronic parts and industrial machinery/tools. This simple but durable microscope enables high contrast image observation and capture.

### Model features

Thanks to its unique, solid-box structure, the MA200 offers high stability, durability, and a smaller footprint than conventional models as well as easy access to the stage handle, the nosepiece, BF/DF change lever, and diaphragms located at front side.

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<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
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### Compatible illuminators

- LV-LH50PC 12V50W Halogen Lamp Illuminator
- C-HGFI HG Precentered Fiber Illuminator (*option)

### Magnification module

- 1x/1.5x/2x

### Compatible stages

- MA2-SR Mechanical Stage (stroke: 50 x 50 mm)

---

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### Compatible stages

- MA-SR-N Rectangular 3-plate Stage N (stroke: 50 x 50 mm)
- MA-SP-N Plain Stage N
- TS2-S- SM Mechanical Stage (stroke: 126 x 78 mm)

*Please use in combination with MA-SP-N Plain stage N.

### Compatible illuminators

- High-intensity white LED Illuminator (internal power supply)

---

*Please use in combination with MA-SP-N Plain stage N.*
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**Magnification module**

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- MA-SR-N Rectangular 3-plate Stage N (stroke: 50 x 50 mm)
- MA-SP-N Plain Stage N
- TS2-S- SM Mechanical Stage (stroke: 126 x 78 mm)
New solution from Nikon: An ideal inverted microscope

**Front Operation**
All controls are on the front of the instrument. Delivers ease-of-use by placing all important controls on the front.

**Evolved Optical Performance**
Basic performance dramatically improved. Provides a more ergonomic and clear image observation.

- **Super-wide field of view**
- **Even illumination**

**Box Structure**
Small footprint than conventional models: Three times free spaces left! Improved durability thanks to the unique box structure.

- **Compact structure with a depth of 315 mm** A box shaped microscope, not only the width but also the depth is reduced dramatically. The lost print is only one-third of the conventional model.
- **High stability/durability** Vibration during high power observation is reduced. Extremely high rigidity.

**Accessory**

**Stage**
The holder comes with a stage clip that enable sample rotation. This flexible handle stage delivers high durability needed to support heavy samples.
- **MA-2 SR Stage**

**DIC**
You can choose standard or high contrast type DIC prism for best match to the sample. It is effective for observation of minute step heights.
- **MA2-PA Unit**
- **EH-DIC Prism (High Contrast)**
- **L-DIC Prism**

**Polarizing**
Polarizing observation is effective for birefringence samples. MA2-PA unit is suitable for observation of aluminum.
- **Single-action operation**
- **Aluminium sample**

**Grain Size Reticle & Scale**
Overlays a pattern onto the observed image. MA2-GR Grain Size Reticle is used for grain size analysis which is compliant to JIS G0551 and ASTM E112 standards. The MA2-MR Scale is used for scale display for each objective magnification.
- **MA2-GR Grain Size Reticle**
- **ASTM E112/10x magnification**

**Box Structure**

**Combination with Digital Camera**
Integration with digital camera for microscopy “Digital Sight series”
The MA200 allows detection of information and control of objective lenses via the camera control unit, enabling optimization of the conditions vital for image acquisition.

- **Detection of objective lens information**
- **Automatic calibration conversion**
- **Control of objective lens**

**Accessories**

**Digital Camera**
- **Stand alone unit**
- **DS-L4**
- **DS-Ri2**
- **DS-Fi3**

**Software**
- **NIS-Elements**
- **TME300 (Conventional model)**
- **MA200**
New solution from Nikon:
An ideal inverted microscope

**Evolved Optical Performance**
Basic performance dramatically improved. Provides a more ergonomic and clear image observation.

- Super-wide field of view
  - The ultra wide field of view eyepiece and with the combination of the newly developed 1x objective lens, a sample of 25mm diameter can be observed in one field of view.

- Even illumination
  - Improved uniformity of illumination delivers clear images, especially for digital imaging.

- Quick Status Check
  - Automatically detects the address of the objective lens currently in use and displays it on the main unit front panel.

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We offer a full lineup of holders that correspond to a variety of sample shapes.

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- MA2-GR Plate
- MA2-MR Scale

**Stage**
The holder comes with a stage clip that enable sample rotation. This flexible handle stage delivers high durability needed to support heavy samples.

- MA2-3R Stage
- MA2-UPA Unit*

**Nosepiece & Magnification Module**
Enables communication of objective lens position, magnification and intermediate magnification module information through the DS-L3 control unit and NIS-Elements image software.

- MA2-MC Magnification Module
- Universal Quadruple Nosepiece

**Combination with Digital Camera**
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*1: Control of the nosepiece from the camera control unit is available in combination with the Motorized Nosepiece and the LV-NCNT-N Motorized Nosepiece Controller.

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- MA2-UPA Unit*
- MA2-5 PA Plate
- MA2-GR Grain Size Reticle

**Digital camera DS-RL2**
**Digital camera DS-Fi3**

**Integration with digital camera for microscopy “Digital Sight series”**

**Even illumination**
Improved uniformity of illumination delivers clear images, especially for digital imaging.

- Combine up to eight images with the stitching feature
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The MA100N is a compact inverted microscope designated for bright field and simple polarizing observations. Responding to the requests from manufacturing and QA/QC sections in a variety of industries, Nikon developed this simple but durable model which enables high contrast image frequent lamp replacement.

**Illumination**

Employment of high-intensity LED illumination (Eco-illumination)

Compared to conventional halogen illumination, these high intensity LED sources need only about one third of consuming electricity and last approximately 30 times longer. The MA100N ensures stable sample observation with uniform color temperature even in different light intensity.

**Stage**

Stable control even with heavy samples

A newly developed stage boasting superior durability

Nikon developed the new MA-SR-N Rectangular Stage especially for the MA100N. The three-plate structure gives the microscope superior control and durability for observation of heavy samples, such as a grinder resin mounted samples.

**Compact Body**

Redesign to 11% smaller than the conventional models

The MA100N is a model designated for LED illumination, which enables to save about 11% of footprint and allows users to have more installation choices.

**Aperture Diaphragm**

Aperture diaphragm coming standard

The epi illuminator comes standard with a variable aperture diaphragm to control image contrast and depth of field.

**Accessory**

Digital Camera for Microscopes

The digital camera is redesigned with new optical system suitable for sample observations. Also, the camera port is located on the side of the microscope to provide highly improved visibility of the stage.

**Other accessories**

- MA-SRH1 Universal Specimen Holder
- MA-SRH1-N Specimen Holder 1N
- MA-P/A Simple Polarizer

- MA-SRSH25-40 Holder
- MA-SRH Universal Specimen Holder
- MA-SH1-N Specimen Holder 1N
- MA-SH3 Specimen Holder 3
- MA-SH2-N Specimen Holder 2N
- MA-SP-N Plain Stage N
- MA-SMH Universal Holder
- MA-S-MH Universal Holder
- TI-SM Mechanical Stage CH
- Microscope Camera DS-Fi3
- C-0.63x-TS2 C-mount Adapter
- TS2-P-OF Camera port 100
- MA100-EPRGS Grain Size Reticle

Grain size reticle

The class of grain size in a sample can be easily distinguished while observing its image.

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**Basic stage set**

A triple-platform stage structure lets you use heavy samples:

- MA-SR-N Rectangular Stage N
- MA-SMH Specimen Holder
- MA-SRH1 Universal Specimen Holder

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**Accessory**

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Microscope Camera DS-Fi3, C-0.63x-TS2 C-mount Adapter, TS2-P-OF Camera port 100, MA-SP-P/N Plain Stage N, MA-SH1-N Specimen Holder 2N, MA-SH5 Specimen Holder 3, MA-SRSH1 Universal Specimen Holder.

**Other accessories**

MA-SRSH1 Universal Specimen Holder, MA-SH1-N Specimen Holder 1N, MA-P/A Simple Polarizer.
Nikon’s CFi60 optical system, highly evaluated for its unique concept of high NA combined with long working distance has further evolved to achieve the apex in long working distance and chromatic aberration correction.

**Standard objective lenses**

**TU Plan Fluor Series**

5x/10x/20x/50x/100x

These universal type standard objective lenses enable brightfield, darkfield, simple polarizing, sensitive polarizing, differential interference, and epi-fluorescence observation in one lens.

**Low-magnification objective lenses**

**T Plan EPI** 1x/2.5x

These low-magnification objective lenses enable clear observation using a conventional analyzer/polarizer, as well as operability-oriented observation without need for an analyzer/polarizer.

<table>
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<tr>
<th>Model</th>
<th>Magnification</th>
<th>NA</th>
<th>Working Distance</th>
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<tbody>
<tr>
<td>T Plan EPI (brightfield type)</td>
<td>1x</td>
<td>0.03</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>2.5x</td>
<td>0.075</td>
<td>6.5</td>
</tr>
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**Apochromatic objective lenses**

**TU Plan Apo Series**

(50x/100x/150x)

By using phase Fresnel lenses, these objective lenses achieve significantly longer operating distances while maintaining the superior chromatic aberration performance of apochromatic lenses. A 50x lens is new to the line-up.

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<td>TU Plan Apo EPI (brightfield type)</td>
<td>50x</td>
<td>0.8</td>
<td>2.0</td>
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<tr>
<td></td>
<td>100x</td>
<td>0.9</td>
<td>2.0</td>
</tr>
<tr>
<td>TU Plan Apo EPI (brightfield type)</td>
<td>50x</td>
<td>0.8</td>
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</tr>
<tr>
<td></td>
<td>100x</td>
<td>0.9</td>
<td>2.0</td>
</tr>
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**Long working distance objective lenses**

**TU Plan ELWD Series**

20x/50x/100x

Through the use of phase Fresnel lenses, these objective lenses enable long working distances while offering higher-level chromatic aberration correction than conventional objective lenses. This further improves operability for samples with differences in level.

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<tr>
<td>TU Plan ELWD (brightfield type)</td>
<td>20x</td>
<td>0.4</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>50x</td>
<td>0.8</td>
<td>11.0</td>
</tr>
<tr>
<td>TU Plan BD ELWD (brightfield type)</td>
<td>50x</td>
<td>0.8</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>100x</td>
<td>0.8</td>
<td>4.5</td>
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**Other Lens**

**Brightfield objective lens**

**CFI L Plan EPI 40x**

A 40x objective lens is best for metal analysis.

NA: 0.65 W.D.: 1.0mm

* Depicted is the brightfield observation (EPI) objective lens.

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**Digital cameras for microscopes**

**DS-Ri2**

Capable of expressing images as is, this microscope digital camera offers high resolution, color reproduction, and frame rate. The Stand-Alone Model is capable of high-definition image acquisition without a control unit.

- Frame Rate: 45fps (1638×1088)
- Max Recordable Pixels: 4908×3264

**DS-Fi3**

Three main features of the previous models, high-resolution, high sensitivity and low noise, and high-speed live display are offered in 1 camera.

- Frame Rate: 30fps (1440x1024)
- Max Recordable Pixels: 2880×2048

**DS-L4**

DS-Fi3 can be optionally connected to the DS-L4 label-style control unit, eliminating the need and space requirements of a desktop PC. DS-L4 has a large number of built-in security for network connectivity.

- Scene Mode
  - Optimal imaging parameters for each sample type and observation method can easily be set through the icons.
- Variety of Tool Features
  - Enables easy measurements directly on images, with input of lines and comments. These can also be written and saved with the image, and measurement data can also be output.

**Imaging software**

**NIS-Elements series**

- Image Stitching
  - Stitches together images acquired from multiple fields of view to create one image.
- EDF (Extended Depth of Focus)
  - Create a single, all-in-focus image from images of differing focus.

* See the “Digital Camera Digital Sight Series for Microscopes” catalog for details on Digital Sight features.
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Standard objective lenses

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Other Lens

Brightfield objective lens

CFI L Plan EPI 40x

A 40x objective lens is best for metal analysis:

NA: 0.65 W.D.: 1.0mm

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Optimal imaging parameters for each sample type and observation method can easily be set through the icons.

Measurement function

Enables easy measurements directly on images, with input of lines and comments. These can also be written and saved with the image and measurement data can also be output.

Variety of Scene Mode

Create a single, all-in-focus image from images of differing focus.

* Depicted is the brightfield observation (EPI) objective lens.

* Depicted is the brightfield observation (EPI) objective lens.

* See the “Digital Camera Digital Sight Series for Microscopes” catalog for details on Digital Sight features.
as well as operability-oriented observation without need for an analyzer/polarizer.

*2: T Plan EPI 1x/2.5x enable clear observation using a conventional analyzer/polarizer,

*1: Built to order.

System Diagram

System Diagram (MA100N)

Dimensions
Specifications (MA200)

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<tbody>
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<td><strong>Main body</strong></td>
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Specifications (MA100N)

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<td><strong>Optics</strong></td>
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Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. April 2017 ©2006-2017 NIKON CORPORATION

N.B. Export of the products in this catalog is controlled under the Japanese Foreign Exchange and Foreign Trade Law. Appropriate export procedures shall be required in case of export from Japan.

*Products: Hardware and its technical information (including software)

**WARNING**

TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING THE EQUIPMENT.