

From Eye to Insight



Microscope Solutions for Industry & Life Science Research Applications

## TOTAL RECALL OF YOUR SETTINGS

M125 C, M165 C, M205 C, and M205 A Stereo Microscopes





## Encoded stereo microscopes for reproducible and reliable results

One of the most fundamental requirements of microscope operators in industrial research or life sciences is to obtain results and findings that are reproducible at all times. This is what makes further developments possible. Simply speaking: reproducibility means being able to repeat something to gain new insights. Over time, with repetition, the unknown becomes more tangible: new discoveries are made, innovations advance, and quality increases.

Practice makes perfect, but with encoding you'll be even faster...

Speed up your discovery process with the encoded stereo microscopes of the Leica M series. These microscopes consistently deliver calibrated and comparable images. All your system settings are saved with each image and can be recalled at any time. So your work results are accurate, reliable and ready for the next significant step.

Feel confident in every situation



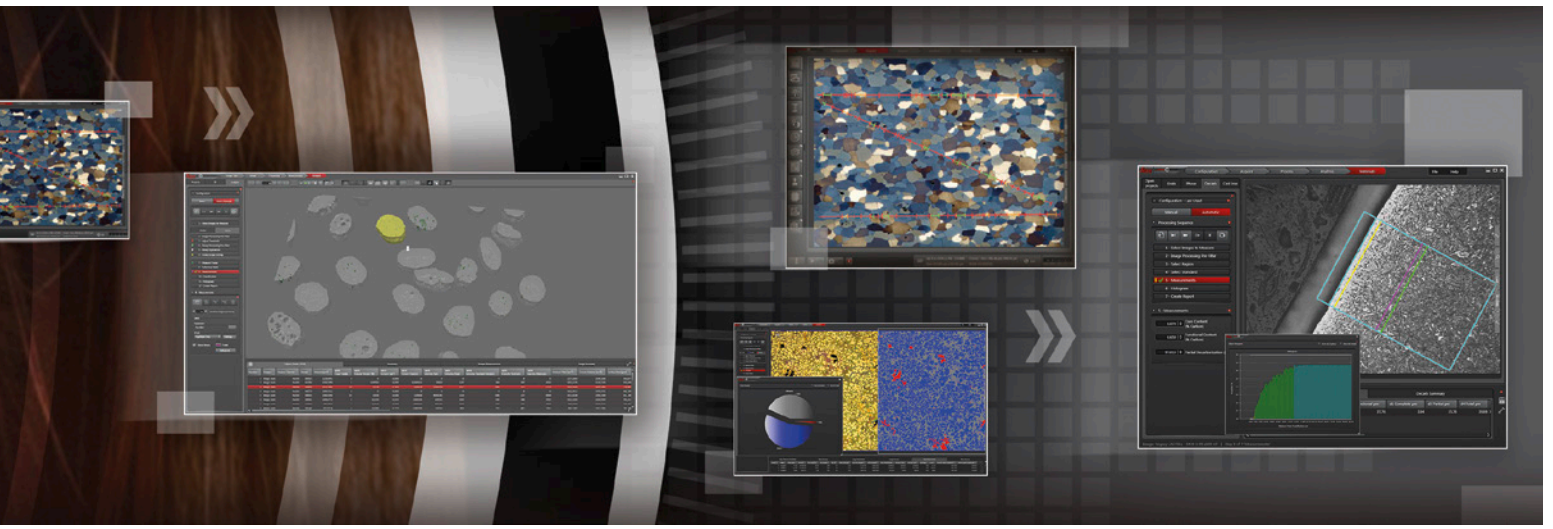
### With a computer

- > Apply system settings of captured images effortlessly to new projects with the Store & Recall function in the Leica Application Suite (LAS) X software
- > Produce reliable results easily, even with less experienced operators, with our intuitive software interface



### Without a computer

- > Store your most used microscope settings in the five memory positions of the SmartTouch control unit
- > Simplify recurring tasks: switch between fixed microscope settings at the touch of a button



# One working environment for all your microscope components

## Leica Application Suite X software

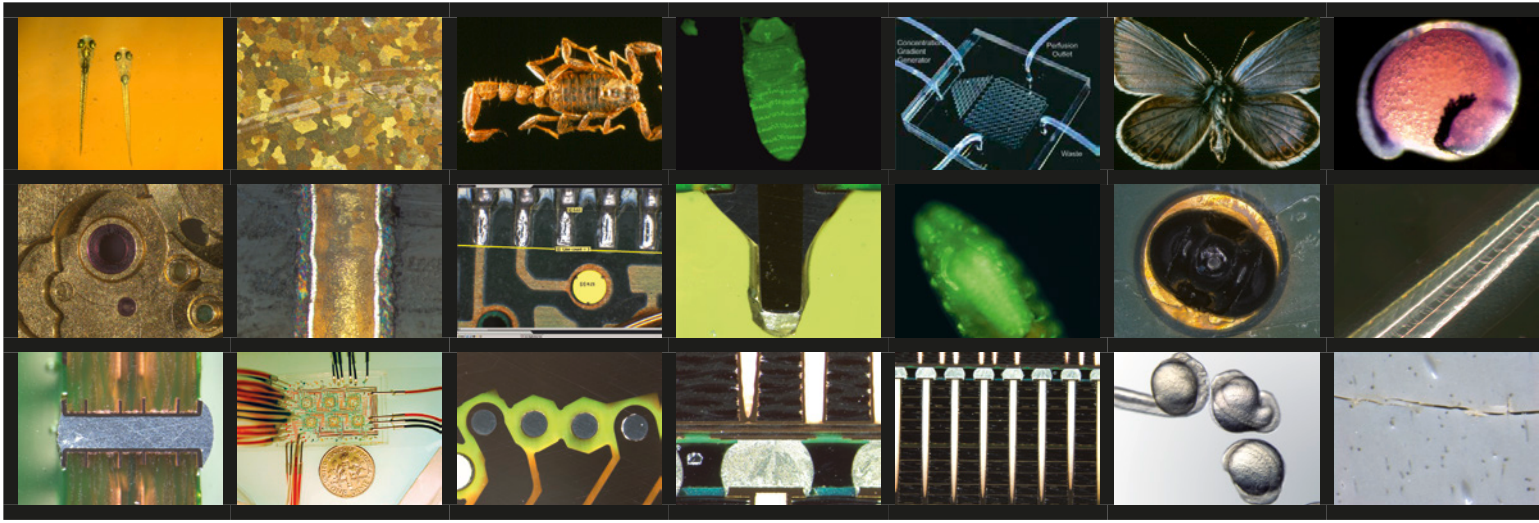
You can expand your modular M series stereo microscope into an intelligent imaging system, tailored to your needs. The Leica Application Suite (LAS) X software considers all relevant imaging parameters, which are detected by the coding of the microscope. From objectives to bases and even the connected illumination, you can monitor everything via the software. This provides you a convenient overview of all your settings in one single working environment.



## Software solutions made for your needs

With the LAS X software, you are well prepared, whether you are just starting out with digital imaging or need application-specific software. The free core software comes with image viewing, basic annotations, simple overlays and image comparison. Add advanced expert modules to increase your imaging and analysis capabilities according to your applications.

Developed with the user in mind, LAS X guides operators through their workflows with an explanatory user interface and direct navigation. The LAS X platform is extremely modular. We are constantly developing new application software that keeps pace with your tasks in industrial applications as well as in life science research.



## Microscope solutions for your needs

With the M125 C, M165 C, M205 C, and M205 A stereo microscopes, specialists in medical devices, automotive, electronics, and life sciences can investigate the smallest of structures.



### The workhorse: M125 C

Don't accept compromises: With a coded zoom and apochromatic optics, the M125 C offers high-end quality for mid-range budgets. Combining optimal resolution and depth of field with the integrated double iris diaphragm.

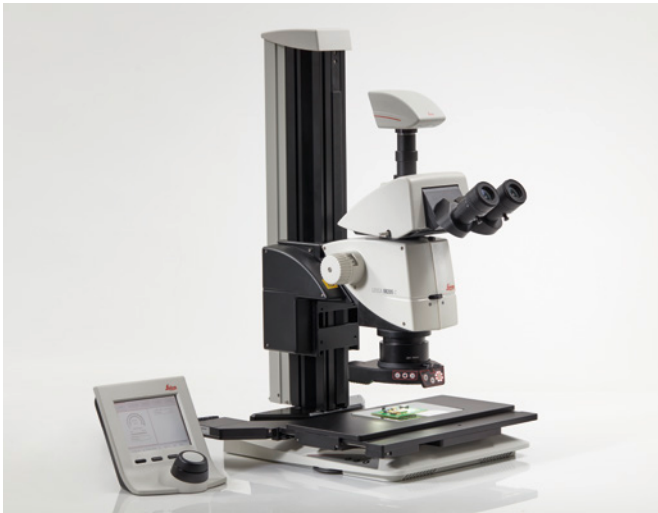
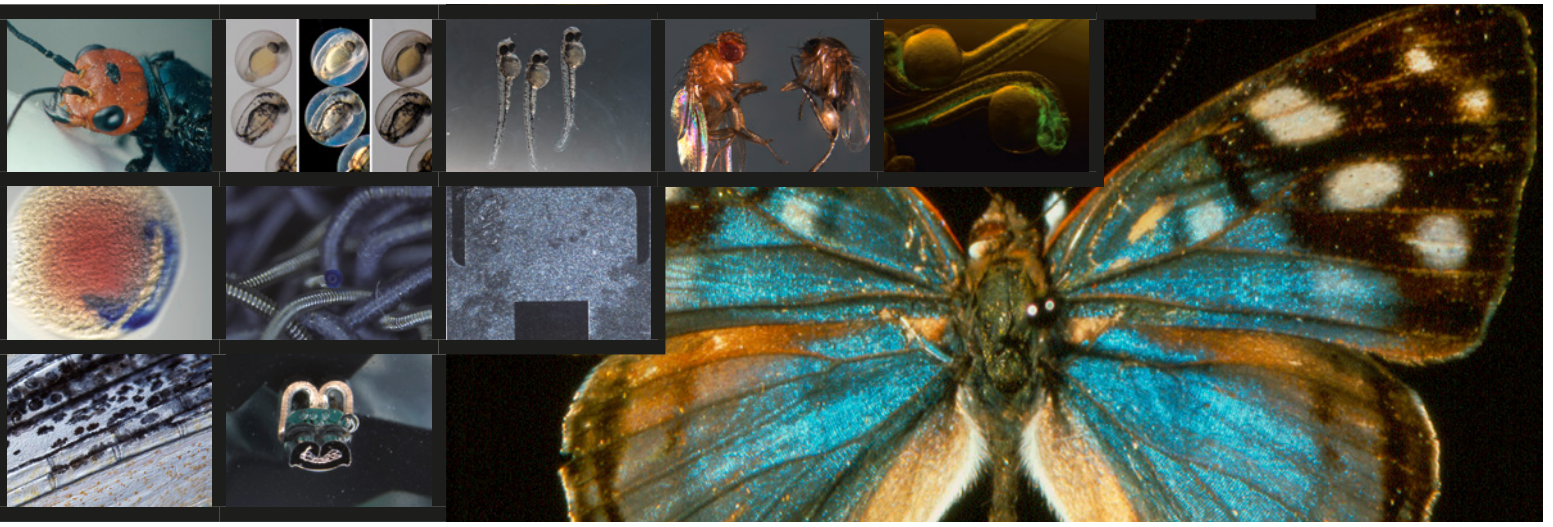
- > 12.5:1 zoom
- > 8× to 100× magnification
- > Up to 864 lp/mm resolution (with 2.0× objective)



### The performer: M165 C

Do you have to perform a wide variety of tasks but don't want to constantly change objectives or switch the microscope? The M165 C offers a large zoom and magnification range that allows you to manage a wide range of different sample types.

- > 16.5:1 zoom
- > 7.3× to 120× magnification
- > Up to 906 lp/mm resolution (with 2.0× objective)



## The high-tech machine: M205 C with FusionOptics

Imagine not having to choose between high resolution or better depth of field, but to have both! The revolutionary FusionOptics technology makes it possible and provides you an ideal stereo image to see the smallest details.

The M205 C is the world's first stereo microscope to achieve an optical resolution of 0.952  $\mu\text{m}$ .

- > 20.5:1 zoom
- > 7.8x to 160x magnification
- > Up to 1,050 lp/mm resolution (with 2.0x objective)

## FusionOptics technology from Leica in the M205 range

Conventional stereo microscopes have two identical beam paths that reveal a spatial impression of the sample. FusionOptics technology takes advantage of a neurological phenomenon: the microscope's left beam path shows an image with great depth of field, while the right beam path shows an image with high resolution. The human brain then effortlessly combines the best information from both channels into one image. This results in an image perception with high resolution and a great depth of field at the same time – an unparalleled Leica standard in stereo microscopy.



The digital display of the M205 A shows all essential settings at a glance.

## Take it to the next level with FusionOptics and full automation: M205 A

A high-end research microscope that gives operators full confidence to run inspections and experiments automatically. You can operate all the functions of this high-performance stereo microscope via the user-friendly SmartTouch control unit or with Leica software allowing you to work nearly hands-free. Streamlining your daily workflow with intelligent automation allows you to run your processes with a few mouse clicks.

LONG-TERM INVESTMENT SAFE MO  
SUBSTANTIAL  
FLEXIBLE WORK  
CUSTOMIZED INDIVIDUAL AD  
PHYSICAL COMFORT

## Add on to your microscope to manage nearly every challenge

With the M series stereo microscopes you can reveal a lot. But when it comes to hard-to-image samples made of glass, micro crystals or inspection of bulky samples you need to enhance your microscope. Our broad range of accessories allows you to cope with almost any challenge.



### Motorized and manual scanning stages

- > LMT260 linear motor stage: up to 1.5 kilos
- > XY scanning stage 75 mm × 50 mm: up to 2 kilos
- > XY scanning stage 150 mm × 100 mm: up to 5 kilos
- > IsoPro 100 mm × 100 mm: up to 500 grams
- > Manual gliding stage 300 mm × 300 mm: up to 500 grams



### Stage accessories

- > Cup stages: hold and position your sample appropriately; choose from slip resistant, magnetic, or vacuum cup stages
- > Gliding stage: rotate your sample 360°
- > Pol rotation stage: view transparent samples like crystals, films, or plastics



### Swingarm and flexarm stands

- > Inspect large and bulky parts conveniently
- > Work flexibly, take advantage of multiple mounting positions
- > Use 560 mm or 800 mm high vertical columns for heavy duty inspections



### Cameras and tubes

- > Select from a range of brightfield and fluorescence cameras
- > Mount two cameras on one microscope
- > Share your microscope view with a second observer via discussion tube



## Work more efficiently with ergonomic accessories

Ergonomics are essential to allow operators to work comfortably even if they spend the entire day working with a microscope.

A well-designed microscope workplace contributes to improved motivation and performance in your team. With the huge variety of ergonomic accessories for the M series stereo microscopes you can create a work environment that is suitable for multiple users – an investment that quickly pays off.

### Physical comfort brings:

- > High work quality
- > Increased productivity
- > Improved concentration
- > Less work-related health issues
- > Happy and healthy employees



## Do it right: use adjustable ergo accessories

A comfortable upright posture is important for all microscope operators. Adjustable microscopes help to avoid shoulder and neck strain. Our ergonomic accessories help to close the gap between the microscope and the users' eyes - especially useful for taller operators.

### ErgoTubes

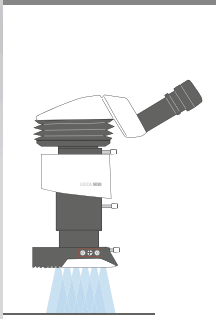
- > ErgoTube 45°
- > ErgoTube 10° – 50°
- > Straight binocular tube
- > Inclined binocular tube 45°
- > Trinocular ErgoTube 5° – 45°

### ErgoModules

- > ErgoWedge 15°
- > ErgoModule 50 mm
- > ErgoWedge 5° – 25°
- > ErgoModule 30 mm – 120 mm

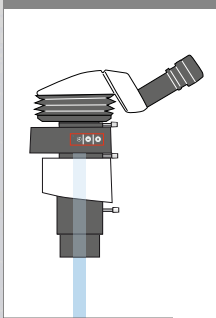
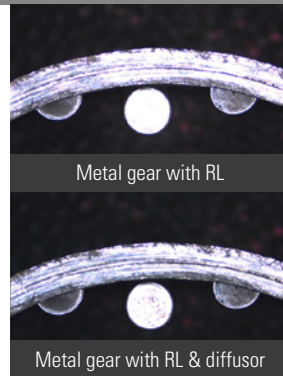


Because the choice of lighting determines what you see in your sample, we offer a wide range of illumination options.



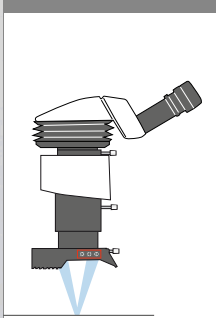
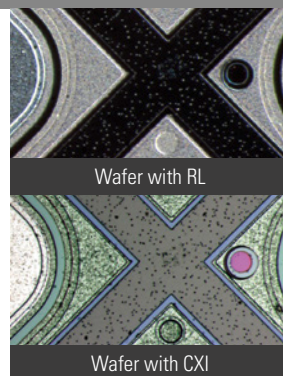
### Ring light illumination (RL)

Work with a bright and uniform illumination over a large object field. For glare reduction, additional diffusors and polarizers sets can be utilized to reduce unwanted shiny spots.



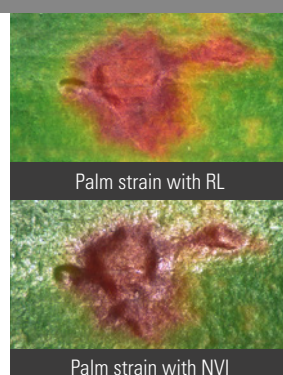
### Coaxial illumination (CXI)

Inspect fine cracks and surfaces of smooth and reflective samples. The light is guided through the optics and reflected from the sample for superb lighting.



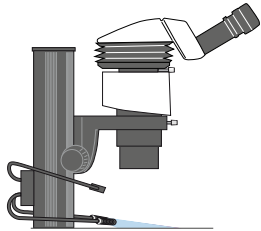
### Near vertical illumination (NVI)

Work with shadow free lighting for samples with recesses or deep holes.





# The right choice of illumination

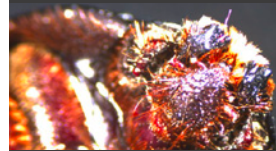


## Spotlight illumination (SLI)

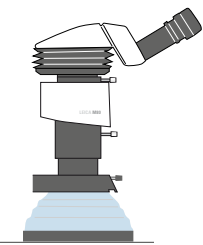
Work with high contrast lighting. The flexible goosenecks allow you to direct the light suitably for many types of samples.



Beetle with RL

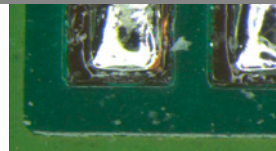


Beetle with SLI

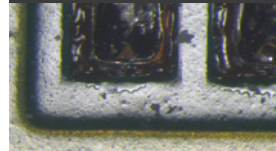


## Diffuse and highly diffuse illumination (DI and HDI)

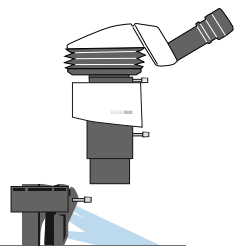
Overcome the difficulties of backlight reflections from curved, non-flat, or reflective samples.



PCB with RL

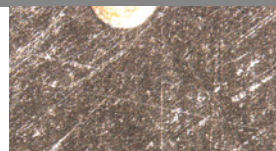


PCB with DI



## Multi-contrast illumination (MCI)

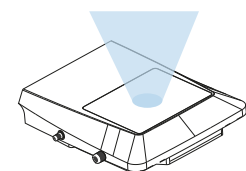
Use repeatable contrast with lighting from two different directions and angles to see hard-to-image details.



Watchwork with RL



Watchwork with MCI



## Transmitted light base TL3000 Ergo

Cycle through different contrast options with just a single knob rotation.

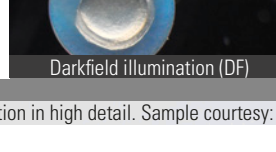
- > See original colors with BF illumination
- > Investigate internal structures with RC
- > Explore smallest details with DF illumination



Zebrafish larva\* with:  
Brightfield illumination (BF)



Rottermann Contrast (RC)



Darkfield illumination (DF)



# The M series stereo microscopes from Leica offer ...

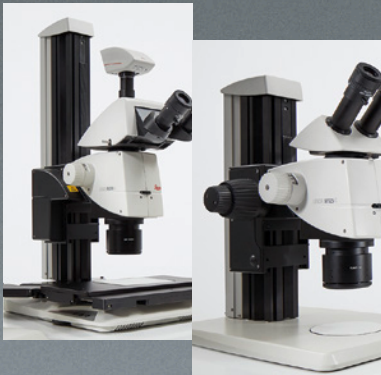
## Easy and flexible system controls

- > SmartTouch
- > Foot switch
- > Focus handwheel



## Different types of focus columns

- > Motorized focus column with encoding
- > Manual focus column
- > Each available with 420 mm or 620 mm height

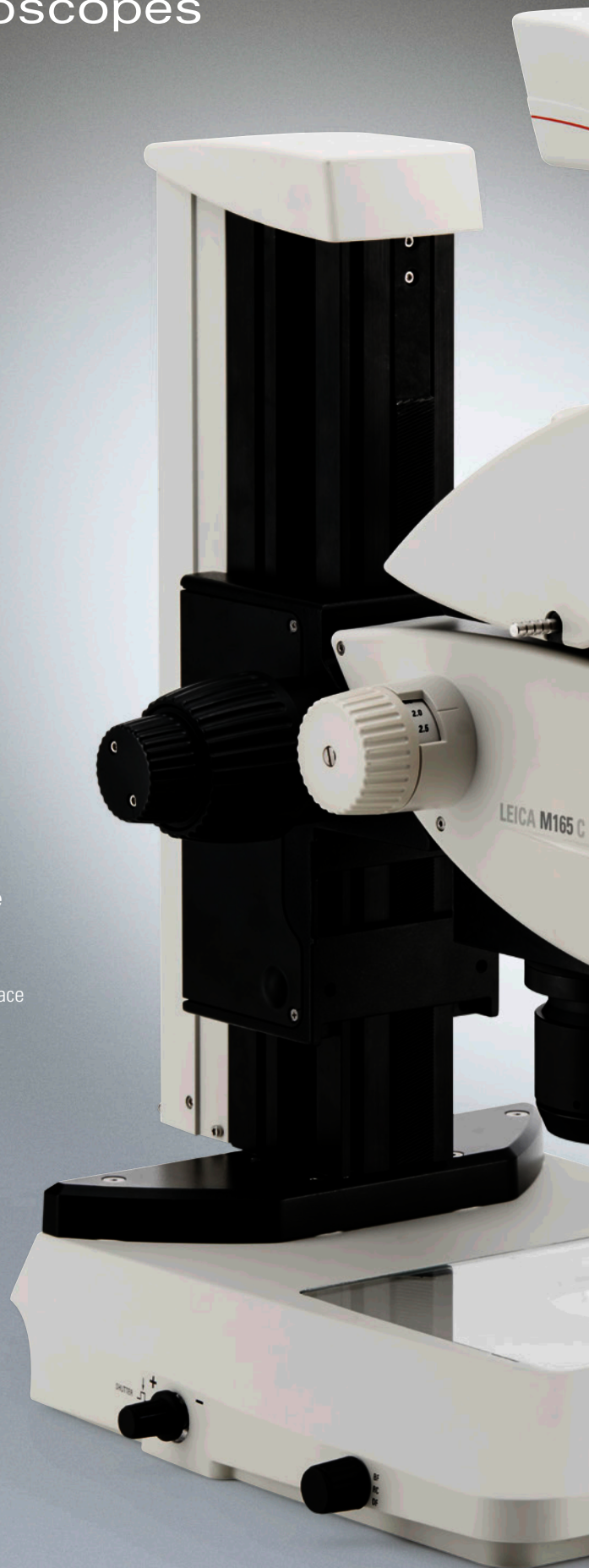


## Clean workspace

- > Integrated power distribution
- > Less cables
- > Smaller footprint on the workspace

## Reliable reproduction of results

- > Continuous electronic readout of the magnification
- > LAS X software recognizes entire microscope configuration at all times
- > Reproduce captured images easily with the Store and Recall module





## Digital imaging

- > Large range of brightfield cameras suited for industrial uses
- > Color fluorescence cameras for high-resolution, brilliant imaging
- > State-of-the-art software for industrial applications and life sciences

## Stereo or macroscopic view

An AX-carrier can turn your M series stereo microscope into a macroscope for:

- > Measuring with a straight 2D image
- > Super Z-stacks
- > Eliminate slightest color fringes



## Smooth operation

- > Parfocal, encoded objectives require no refocusing when changing them
- > Large choice of lenses to cover a variety of applications
- > Objectives are automatically detected by the software

## High-Performance optics

- > Zoom optics corrected for chromatic aberrations
- > Wide selection of apochromatic objectives to correct for both color and flatness
- > Parfocal objective revolvers and continuous zoom for large magnification range



## Convenient working distance

- > Largest working distances for all Leica main objectives
- > Enough space for working with tools under the microscope lens
- > Wide overview of the specimen



# SPECIFICATIONS



	M125 C	M165 C	M205 C / M205 A
Zoom	12.5:1 manual coded	16.5:1 manual coded	20.5:1 manual/motorized coded with FusionOptics
Optical data			
<b>Data with standard optics (1× objective/10× eyepieces)</b>			
– Zoom range	8×–100×	7.3×–120×	7.8×–160×
– Resolution	max. 432 lp/mm	max. 453 lp/mm	max. 525 lp/mm
– Working distance	61.5 mm (planapochromatic)	61.5 mm (planapochromatic)	61.5 mm (planapochromatic)
– Object field	∅ 28.8 mm–2.3 mm	∅ 31.5 mm–1.92 mm	∅ 29.5 mm–1.44 mm
<b>Maximum values (based on optics combination)</b>			
– Magnification	800×	960×	1,280×
– Resolution	864 lp/mm	906 lp/mm	1,050 lp/mm
– Visible structural width	579 nm	551 nm	476 nm
– Numerical aperture	0.288	0.302	0.35
– Object field	∅ 68 mm	∅ 63 mm	∅ 59 mm
<b>Working distances</b>	135 mm (0.5× planachromatic) 112 mm (0.8× planachromatic) 67 mm (0.63× planapochromatic) 61.5 mm (1× planapochromatic) 30.5 mm (1.6× planapochromatic) 20.1 mm (2× planapochromatic)		
Optics carrier			
100 % apochromatic optical system	CMO (Common Main Objective) lead-free		
Coded/motorized function	Zoom, iris diaphragm, objective nosepiece (coded only)	Zoom, iris diaphragm, objective nosepiece (coded only)	Zoom, iris diaphragm, objective nosepiece (encoded and motorized)
Specific surface resistivity (housing)	$2 \times 10^{11} \Omega/\text{mm}^2$ discharge time <2 seconds from 1,000 V to 100 V		
Engageable zoom notches	12 for repetitive tasks	13 for repetitive tasks	14 for repetitive tasks (M205 C) continuously variable control with SmartTouch or LAS X (M205 A)
Double-iris diaphragm for depth of field control	Built-in and encoded	Built-in and encoded	Installed and encoded (M205 C) / motorized (M205 A)

CONNECT  
WITH US!



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