# From Eye to Insight



# HIGHEST COLOR FIDELITY: BRIGHTFIELD DOCUMENTATION CAMERAS

Camera

#### Leica EC4

Introductory CMOS camera

Performance



Cost effective color documentation camera to complement educational microscope systems. It acquires 3.3 MP color images and can be connected via USB 2.0 to PC and Mac for subsequent basic annotations and measurements.

Sensor

3.3 MP CMOS
Pixel size 3.2 x 3.2 µm
2112 x 1584 pixels
8 bit A/D converter
24 fps (1600 × 1200 Pixel)

**Application** 

Matching the requirements for **basic documentation** of brightfield and phase contrast specimens with basic annotation and measurement tools.

Image Example

Daphnia



## Leica IC90 E/ICC50 E/ICC50 W

Integrated HD CMOS cameras



All cameras can be seamlessly integrated with either compound or stereo microscope systems. All of them generate HD color images, which can be displayed directly on a monitor. The Leica ICC50 W features in addition Wi-Fi and the Leica ICC50 E/IC90 E Ethernet capabilities.

10 MP/5.0 MP CMOS Pixel size 1.7 x 1.7/2.3 x 2.3 µm 3648 x 2736/2592 x 1944 pixels 8 bit A/D converter 38 fps (HDMI 1280 x 760) IC90 E 28 fps (640 x 480) 12 fps (1440 x 1080)

Ideal cameras when both – moderate resolution documentation and **fast live display** on a monitor are needed.

Wing of a butterfly (Charaxes zingha)



### Leica MC170 HD/MC190 HD

HD CMOS cameras

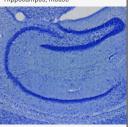


These cameras deliver fast HD live images, which can be directly displayed on a monitor or stored on a memory card. The acquisition is controlled via handheld remote control unit or application software.

5.0 MP/10.0 MP CMOS
Pixel size 2.4 x 2.4/1.7 x 1.7 µm
3648 × 3648/2592 x 1944 pixels
10 bit A/D converter
30 fps (HDMI 1920 x 1080)
10 fps (PC 1600 x 1200)

Developed for high speed live display of stained specimens or macroscopic model organisms for educational purposes or group consultations in pathology departments.

Hippocampus, mouse



#### Leica DMC2900

High-Speed CMOS camera



Fast CMOS camera with excellent color fidelity and fast live imaging. With extended camera settings and features such as a look-up table, gain, etc., this camera thus accommodates demanding microscope brightfield techniques.

3.1 MP CMOS
Pixel size 3.2 x 3.2 µm
2048 x 1536 pixels
10 bit A/D converter
12 fps (full frame)
30 fps (2 x 2 binning)

Best suited for **good color documentation** of brightfield, phase contrast, and DIC
techniques. It is the camera
of choice for fast brightfield
documentation in combination
with a dedicated fluorescence
camera.

Examination of tissue sample (H&E staining)



### Leica DMC4500/DFC450 C

Color CCD cameras

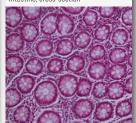


The Leica DMC4500 and the cooled DFC450 C are capable of acquiring color images at the quality level of a CCD sensor. Also features various binning modes and automatic brightness correction.

5.0 MP CCD Pixel size 3.4 x 3.4 µm 2560 x 1920 pixels 14 bit A/D converter 9 fps (full frame) 18 fps (2 x 2 binning)

Dedicated camera for **excellent color documentation** at high resolution, e.g. in combination with tile scanning of a large specimen. Accommodates all brightfield contrast methods. Ideal for later image analysis and measurements.

Intestine cross-section



#### Leica DMC5400

High-Resolution CMOS camera



This high-resolution color camera offers HD images in 4k resolution with high frame rate even at low magnification. True-color calibration provides natural color reproduction. The camera has a USB 3.0 interface.

20.5 MP CMOS sensor Pixel size 2.4 x 2.4 µm 5472 x 3648 pixels 3 x 12 bit A/D converter 7 fps (full frame) 32 fps (3 x 3 binning)

Ideally suited for the documentation, evaluation, and analysis of industry or life science research samples. Save all information in just one high quality image. Capture images with high dynamic range for a maximum of detail in light, as well as dark areas.

Swiss Banknote



## LEICA MICROSYSTEMS' CAMERA PORTFOLIO FOR LIFE SCIENCES

A perfect match to your application

## **Key success factors:**

- Leica color cameras provide outstanding color fidelity due to state-of-theart color interpolation algorithms performed in the camera head
- Even fine structural and color details can be distinguished due to appropriate pixel sizes for every desired microscope magnification
- High-Definition (HD) display directly on a monitor allows discussion of findings with a large auditorium



Color camera



High-Definition camera



All contrast methods (except fluorescence)



Dedicated fluorescence camera



## HIGHEST SENSITIVITY: FLUORESCENCE DOCUMENTATION CAMERAS

Camera

#### Leica DMC6200

Pixel Shift Camera

Performance

## HD BF FL

The DMC6200 provides super fast image acquisition and delivers precise color information in every pixel. Even the most subtle color differences are detected through multiple sampling. The camera features a state-of-the-art Sonv Exmor CMOS sensor.

Sensor

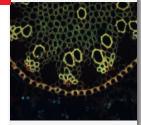
2.3 - 20.7 MP CCD Pixel size 5.86 x 5.86 um 1920 x 1200 - 5760 x 3600 pixels 3 x 16 bit 30 fps (1920 x 1200)

Application

Flexible color camera for ultra-high resolution brightfield documentation with unsurpassed color fidelity and good fluorescence documentation of immunostained specimen.

Image Example

Convallaria



### Leica DFC7000 T

CCD Microscope Color Camera



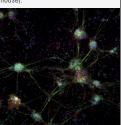
BF FL

The Leica DFC7000 T is based on the newest generation of Sony EXview HAD II™ sensor technology which combines high-resolution with highsensitivity. Users can obtain fluorescence and brightfield images with one camera.

2.8 MP CCD Pixel size 4.54 x 4.54 um 1920 x 1440 pixels 8/12 bit with 16 bit A/D converter 40 fps (full frame) 123 fps (5 x 5 binning)

Cooled color fluorescence camera for excellent brightfield and fluorescence documentation. Specialty: simultaneous multi-color fluorescence imaging of fixed samples.

Cultured cortical neuronal cells



### Leica DFC3000 G

CCD microscope camera

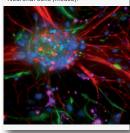


Passively cooled fluorescence camera with effectively reduced background noise. Camera can be high-speed triggered.

1.3 MP CCD Pixel size 3.75 x 3.75 um 1296 x 966 pixels 14 bit A/D converter 31 fps (full frame) 54 fps (2 x 2 binning)

Monochrome camera for basic fluorescence applications such as documentation of fixed, immunostained cells and tissues.

Neuronal cells (mouse)



### Leica DFC7000 GT

CCD Microscope Camera

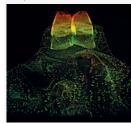


High-sensitivity camera based on the newest generation of Sony EXview HAD II™ sensors which combine high-resolution with high sensitivity. Features high speed triggering and regulated sensor cooling.

2.8 MP CCD Pixel size 4.54 x 4.54 um 1920 x 1440 pixels 8/12 bit with 16 bit A/D converter 40 fps (full frame) 123 fps (5 x 5 binning)

Versatile cooled monochrome high-sensitivity camera for fluorescence documentation and standard live cell imaging of FP-expressing cells and tissues.

D. melanogaster larva. Sample: Courtesy of Prof. Stephan Sigrist, Freie Universität Berlin, Ger-



### Leica DFC9000 GT/GTC

sCMOS Microscope Camera



FL

Deeply cooled sCMOS camera with a unique combination of high QE (82 %), extreme low noise, high dynamic range, large sensor (19 mm), and highspeed acquisition

4.2 MP sCMOS Pixel size 6.5 x 6.5 um 2048 x 2048 pixels 12/16 bit 50 fps (GT) /90 fps (GTC) ~165 fps (1048 x 1048)

Deeply cooled monochrome fluorescence camera for advanced applications like high-speed live cell imaging, FRAP, and ratio measurement with amazing image quality.

Paramecium



### **Key success factors:**

- High-sensitivity of the sensor allows short exposure times and therefore prevents photo bleaching and actively protects the cells from any photo damage
- Cooling of the camera reduces unwanted noise and generates crystal clear fluorescence signals against dark background
- Hardware-triggering and overlapping mode of read-out allows high-speed, real-time live cell imaging



Color camera







