



# Leica DFC495

**High Performance Digital FireWire Color Camera System  
for High-resolution Photomicrography**

Living up to Life

**Leica**  
MICROSYSTEMS

# Ultra High-resolution Phot

## Feature Highlights:

- 8 Megapixel CCD for excellent, high-resolution images
- Quick transfer to PC with standard FireWire 1394b interface
- SXGA 1208×960 progressive scan preview with up to 16 frames per second
- 36 bit RGB color depth
- Peltier cooling for high dynamic range and minimum noise in low light situations
- Exposure times from 2 msec to 600 sec
- Fastest scanning of a freely defined area at full resolution
- Simple, fast connection to all microscopes via the C-mount interface
- Excellent live image mode for quick focusing and positioning
- Power supply and quick, reliable data transfer with only one cable
- Intuitive user interface with convenient image capture and processing functions for PCs
- Outstanding image quality
- Two-color LED displays operation status

New applications in life science and industry require innovative approaches to imaging. Quickly producing high-quality images for documentation, evaluation, and analysis is the key to imaging success. The Leica DFC495 digital camera system provides the highest color fidelity, resolution, and detail. Real time speeds can be achieved using a variety of innovative readout modes. The Leica DFC495 is ideal for the most intricate documentation.

## High-resolution Detail

The cutting edge Leica DFC495 integrates an 8-megapixel CCD, offering superior quality, high-resolution images that were previously only possible with multiple acquisition cameras. High-resolution CCD's are especially beneficial for low magnification microscope imaging, as the amount of information provided by the optical system is much larger than with high magnification. The DFC495 produces sharp images with unsurpassed color accuracy that represents the best in the industry.

## Innovative Readout

Innovative data readout modes allow the user to freely select image transfer, speed, and scan method. Full frame readout mode, for example, utilizes full camera resolution (3264×2448 pixels) with 12-bit signal processing uncompressed TIFF files and producing 38 MB files. By saving such huge image data in 3×8 Bit only and in JPEG format, you can of course reduce the image size considerably.

## Uniquely Engineered

The Leica DFC495 incorporates a three-tiered cooling system designed to eliminate thermal noise buildup in the camera. An integrated Peltier cooling system draws heat away from the CCD, eliminating excited electrons in the camera head. Leica's unique metallic camera housing with heat-dissipating fins pulls heat away from the camera. The DFC495, like all Leica cameras, uses the photo coupler as a heat dissipation conduit.



# ography Provides Precise detail

## **System Integration**

Creating crisp, sharp images was never easier with the new Leica Application Suite (LAS) software. LAS features automatic microscope setup and calibration, annotation, and measurement functions. If LAS is used with an automated microscope, the user can store and recall camera and microscope parameters to exactly reproduce previously made pictures. The unique workflow approach of LAS makes processing and organizing high-resolution images a snap.

## **High-performance Leica LAS software**

The Leica Application Suite software (LAS) included in the scope of supply offers numerous functions for recording and retouching images. Beginners as well as experienced users can thus use the full potential of the digital technology. The captured images can be edited, analysed, archived and reproduced as often as you wish without any loss in quality.



Leica DM4000M with Leica DFC495 Digital Microscope Camera and PC System with Leica LAS Software

# Technical Data: Leica DFC495

<b>Digital Camera</b>		<b>Leica DFC495</b>	
Camera type	Digital camera for microscopy with control software		
Sensor	Interline transfer frame readout CCD – ICX456		
Sensor Grade/Size	Grade Zero / 8.81 mm × 6.61 mm (Type 2/3")		
Color filter	RGB Bayer mosaic		
Protective color filter	Hoya CM500S (IR cut-off 650 nm), removable		
Shutter control	Electronic global shutter/interlaced readout, 3 images		
Number of pixels / Pixel size	8 Megapixel, 3264 × 2448 / 2.7 µm × 2.7 µm		
Color depth	36 Bit		
A/D converter	12 Bit		
Dynamic range	> 58 dB / > 800:1		
Exposure time	2 msec – 600 sec		
Readout noise	σ < 6 LSB (12 bit) typical		
Gain control/Offset control	10× / 0. 255 LSB (12 bit)		
Shading correction	Yes, stored for all formats		
Cooling	Δ –20° to ambient		
Region of interest	Freely adjustable in 2 pixels steps from 2 × 2 up to full resolution		
<b>Image Formats</b>	<b>Pixel</b>	<b>Images per Second, Fast / HQ</b>	
Interlaced large	3264 × 2448	4/2	
Interlaced medium	2176 × 1632	6/3	
Progressive large (SXGA)	1280 × 960	16/8	
Progressive medium	1088 × 816	24/12	
Progressive small	544 × 408	48/24	
Modes	Formats in Fast (40MHz) or High Quality (20MHz) modes		
<b>Computer</b>	<b>Hardware</b>	<b>Software</b>	
Min. computer configuration	Pentium 4, 2.5 GHz, 1 GB RAM 24 bit graphics, 1024 × 768, 6-pin or 9-pin FireWire OHCI or free PCI slot	Leica DFC Twain Leica LAS Software Windows Vista 32/64 bit Windows XP prof. 32/64 bit, SP3	
<b>Interfaces</b>			
Recommended video adapter	C-Mount 0.63× or 0.8×		
Data	Single cable FireWire – IEEE1394b 9-pin, screw-lock		
Digital Input connector	Opto-decoupled trigger		
Digital Output connector	Flash synch or readout active		
<b>Physical and Environmental</b>			
Power consumption	~6 W		
Power supply	via FireWire cable		
Housing	Aluminium die cast		
Size	132 × 74 × 69 mm <sup>3</sup>		
Weight	495 g		
Operating temperature range	+5 to +35 °C		
Relative humidity	10 % .. 80 % non condensing		
<b>Order Numbers</b>			
12 730 223	Leica DFC495 Camera kit comprising: Leica DFC495 Camera, Leica software, FireWire cable a–b		
<b>Additional Items</b>			
12 730 210	PCI-Express FireWire-b card for PCs without FireWire		
12 447 066	Laptop PCMCIA FireWire-a interface card		
12 730 186	FireWire cable, 3 m, b–b, 9/9-Pin		
12 730 187	FireWire cable, 3 m, a–b, 6/9 Pin		
12 730 188	FireWire Power kit comprising: 110/220V power supply, 4-pin FireWire-a or 6-pin FireWire-a adapter		