Leica DFC495

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

Living up to Life
Ultra High-resolution Photography Provides Precise detail

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.

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

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.
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.
Technical Data: Leica DFC495

Digital Camera

Leica DFC495

Camera type
Digital camera for microscopy with control software

Sensor
Interline transfer frame readout CCD – ICX456

Sensor Grade/Size
Grade Zero / 8.81 mm x 6.61 mm (Type 2/3"

Color filter
RGB Bayer mosaic

Protective color filter
Hoya CM500S (IR cut-off 650 mm), removable

Number of pixels / Pixel size
8 Megapixel, 3264 x 2448 / 2.7 µm x 2.7 µm

Color depth
36 Bit

A/D converter
14 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 x 2 up to full resolution

Image Formats

Pixel Images per Second, Fast / HQ
Interlaced large
3264 x 2448
4/2
Interlaced medium
2176 x 1632
6/3
Progressive large (SXGA)
1280 x 960
16/8
Progressive medium
1088 x 816
24/12
Progressive small
544 x 408
48/24

Modes
Formats in Fast (40MHz) or High Quality (20MHz) modes

Computer

Hardware

Software

Min. computer configuration
Pentium 4, 2.5 GHz, 1 GB RAM
24 bit graphics, 1024 x 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

Interfaces

Recommended video adapter
C-Mount 0.63x or 0.8x

Data
Single cable FireWire – IEEE1394b 9-pin, screw-lock

Digital Input connector
Opto-decoupled trigger

Digital Output connector
Flash synch or readout active

Physical and Environmental

Power consumption
~6 W

Power supply
via FireWire cable

Housing
Aluminium die cast

Size
132 x 74 x 69 mm³

Weight
495 g

Operating temperature range
-5 to +35 °C

Relative humidity
10 % ... 80 % non condensing

Order Numbers
12 730 223 Leica DFC495 Camera kit comprising: Leica DFC495 Camera, Leica software, FireWire cable b–b

Additional Items
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

www.leica-microsystems.com