



Leica DFC490

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

Leica
MICROSYSTEMS

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 DFC490 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 DFC490 is ideal for the most intricate documentation.

High-resolution Detail

The cutting edge Leica DFC490 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 DFC490 produces sharp images with unsurpassed color accuracy that represents the best in the industry.

Innovative Readout

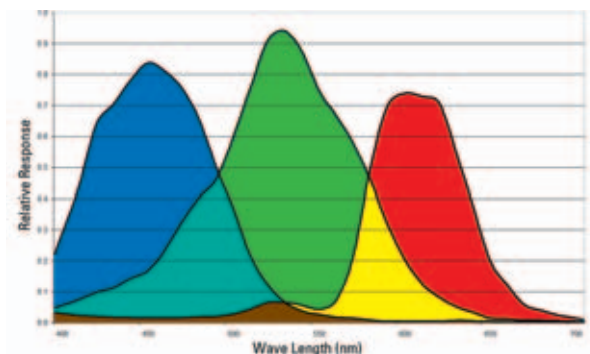
Innovative data readout modes allow the user to freely select image transfer, speed, and scan method. Full frame readout mode, for example, utilizes full camera resolution (3264 × 2448 pixels) with 12-bit signal processing uncompressed TIFF files and producing 38 MB files. By saving such huge image data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

Uniquely Engineered

The Leica DFC490 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 DFC490, like all Leica cameras, uses the photo coupler as a heat dissipation conduit.

Feature highlights

- 8 Megapixel CCD for excellent, high-resolution images
- 1088 × 816 progressive scan preview with up to 15 fps
- 36 bit RGB color depth
- Peltier cooling for high dynamic range and minimum noise for recordings under low light
- Innovative fast readout of monochromatic images
- Exposure times from 1 msec to 600 sec
- Partial scan mode: 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 PC and Mac
- Outstanding image quality
- Two-color LED displays operation status
- Quick transfer for PC and Mac with standard FireWire 1394a interface



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.

Intuitive solutions for PC and MAC

The camera's software makes digital recording on the screen quick and easy, using either a PC or MAC. The easy-to-use interface is specifically designed for microscopy applications. Numerous intuitive image capture and editing functions ensure that recorded images are immediately available for viewing and processing, offering the highest quality and full use of all the benefits of digital technology.

Equipment components

Order numbers

- | | |
|-----------|---|
| 12730 078 | Leica DFC490 camera kit including:
Leica DFC490 camera
Leica DFC Twain Software for PC
Leica FireCam Software for Mac
Leica Application Suite Software for PC
Leica IM50 Image Manager for PC
2.5m, 6 to 6 pin FireWire cable |
| 12447 053 | OHCI FireWire PCI Card for PCs without FireWire interface |
| 12447 066 | Laptop PCMCIA FireWire interface card |
| 12447 140 | FireWire cable – 4m, 6 to 6 pin |
| 12730 180 | FireWire power kit –
FireWire hub with power supply
for use with 4-pin FireWire or
Unpowered 6-pin FireWire |



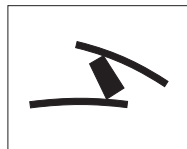
Leica Automated Stereomicroscope MZ16 A
with Leica DFC490 Digital Camera,
Leica HL RC base and Leica LAS Software

Technical Data: Leica DFC490



Digital Camera	Leica DFC490	
Camera type	Digital camera for microscopy with control software	
Sensor	Interline transfer frame readout CCD – ICX456	
Sensor Grade/Size	Grade Zero / 8.81mm × 6.61mm (Type 2/3)	
Color filter	RGB Bayer mosaic	
Protective color filter	Hoya CM500S (IR cut-off 650nm)	
Shutter control	Electronic global shutter/interlaced readout	
Number of pixels	8 Megapixel, 3264 × 2448	
Sensitive area	8.81mm × 6.61mm	
Pixel size	2.7µm × 2.7µm	
Color depth	36 bit	
A/D converter	12 bit	
Dynamic range	> 58 dB / 800:1	
Readout noise	σ < 6 LSB (12 bit) typical	
Exposure time	1 msec – 600 sec	
Dark current	0.22 LSB/sec at 12 bit typical	
Gain control/Offset control	10× / 0.. 255 LSB (12 bit)	
Live image	On computer screen	
Shading correction	Yes, stored for all formats	
Brightness correction	On all color binning modes	
Cooling	Active Peltier thermoelectric cooling element	
Cooling temperatures	Δ -20°K to ambient	
Region of interest	Freely adjustable in 2 pixels steps from 2 × 2 up to full resolution	
Image Formats	Pixels	Speed - Fast / HQ
Interlaced large	3264 × 2448	2.8/1.4 fps
Interlaced medium	2176 × 1632	4.2/2.1 fps
Progressive large	1088 × 816	16.6/8.3 fps
Progressive medium	544 × 408	32/16 fps
2 × 2 Binning	544 × 408	32/16 fps
Modes	Formats in Fast (29.5MHz) or High Quality (14.75MHz) modes as indicated above, trigger or free running	
Computer	PC	MAC
Min. computer configuration	Pentium 4, 2.5GHz, 1GB RAM 24 bit graphics, 1024 × 768, CD-ROM drive 4-pin or 6-pin FireWire OHCI or free PCI slot	G4, G5, Intel Duo, 512MB RAM CD-ROM drive
Supported operating systems	Windows 2000, Windows XP	MAC OS 10.3 or higher
Software	Leica DFC Twain Leica LAS Software Leica Image Manager	Leica FireCam
Interfaces		
Optical	C-Mount	
Recommended video adapter	0.63×	
Data	Single cable FireWire – IEEE1394a 6-pin	
Digital Input connector	Opto-decoupled trigger	
Digital Output connector	Flash synch or readout active	
Software trigger	Async trigger	
Operation status	Green / Yellow LED	
Physical and Environmental		
Power consumption	~6 W	
Power supply	Via FireWire cable	
Housing	Aluminum die cast	
Size	132 × 74 × 69mm ³	
Weight	495g	
Operating temperature range	+5 to +35°C	
Relative humidity	10%..80% non-condensing	

Winner 2005



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