



Leica DFC300 FX

Digital FireWire Color Camera System
For Fluorescence Microscopy

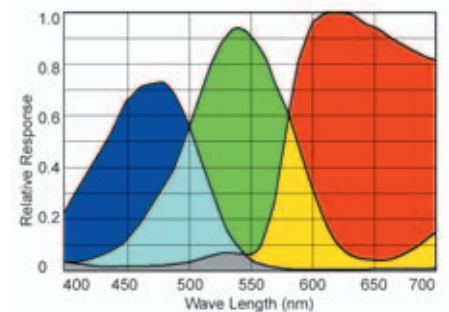
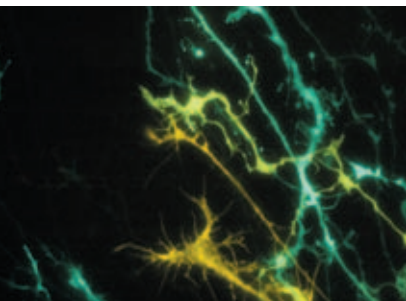
Leica
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Fast Color Fluorescence Imaging

The Leica DFC300 FX Digital Color Camera is specifically designed for the most intricate imaging requirements in genetic research, biotechnology and medicine. The Leica DFC300 FX records live cells, sequences of motion and fluorescence specimens or particles that are susceptible to photobleaching, even at the lowest light intensities. High sensitivity in the visible spectrum ensures reliable results in fluorescence microscopy, especially for GFP and other low illumination applications. The Leica DFC camera housing is lightweight and compact, and easily attaches to any microscope.

Highlights

- Quick transfer for PC and MAC with standard FireWire
- 1.4 Megapixel CCD with Bayer Array RGB Filter (high sensitivity)
- Ideal for live cell and quickly bleaching fluorescence specimens
- 36 bit RGB color depth
- High linearity across the complete dynamic range with the lowest noise ratio
- Exposure time adjustable from 5 μ seconds to 10 minutes
- Up to 60 images per second for quickly bleaching fluorescence specimens
- Sub-array Scan Mode: fastest scanning of a freely defined area at full resolution
- Easy installation to a microscope, stereomicroscope or macroscope
- Power supply for camera and fast data transfer using FireWire interface
- Intuitive user interface with convenient image capture and processing functions for PC and MAC



Fast Exposure

The heart of the DFC300 FX is a 2/3" progressive scan interline sensor. Due to its high sensitivity, quickly bleaching fluorescence specimens can now be exposed rapidly and the fluorescence excitation light can be significantly reduced for sensitive live cells. Active cooling of sensor elements using a Peltier element creates noise-free images even at the lowest light intensities.

Intuitive Imaging Solutions for PC and MAC

The software that accompanies the camera ensures fast and easy capturing of digital images on the screen. The Leica DFC300 FX is PC or MAC compatible, and the camera is easy to operate using an interface specifically designed for microscopy applications. Numerous intuitive image capture and editing functions ensure immediate availability of high quality recorded images for viewing and processing. The Leica DFC300 FX allows all the advantages of digital technology to be fully utilized.

Capture Motion with Precision

In Partial Scan Mode, freely definable areas can be captured with precision. The extremely high scanning frequency allows efficient documentation of 3D moving objects at full camera resolution.

Highest Scanning Rates

The camera delivers up to 60 images per second in 4 x 4 binning mode. The top scan rate allows fast focusing using the monitor and perfect parameter adjustment. At the same time, specimen photobleaching is avoided. Recording can also be performed in high resolution mode.

Leica Fluorescence Applications

With an increase in powerful fluorescence applications, Leica has developed total solutions for our customers' imaging needs. The Leica FW4000 Fluorescence Workstation is an easy-to-use, modular fluorescence imaging platform. Its modularity makes it applicable for both routine and complex imaging applications. The Leica DFC300 FX allows the capture of high quality color fluorescence images quickly and easily.

Leica Image Management Software

The Leica DFC300 FX includes Leica IM50 Image Manager software. Leica IM software comprises various programs for archiving, editing, and analyzing electronic images.

Equipment Components

Order numbers

12730 042	Leica DFC300 FX camera kit including: Leica DFC300 FX camera Leica DFC Twain Software for PC Leica Firecam Software for Mac Leica IM50 Image Manager for PC 2m, 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 049	FireWire power kit – Power supply for use with 4-pin FireWire or Unpowered, 6-pin FireWire



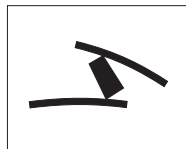
The Leica DM RXA2 Automated Research Microscope with Leica DFC300 FX Digital Camera and the Leica FW4000 Fluorescence Workstation.

Technical Data: Leica DFC300 FX



Digital Camera	Leica DFC300 FX (R2)	
Camera type	Digital color high-sensitivity cooled camera for fluorescence microscopy with control software	
Sensor	Interline progressive scan CCD – ICX285AQ	
Sensor Grade/Size	Grade Zero / 10.2mm × 8.3mm, Diagonal 11mm (Type 2/3)	
Color filter	RGB Bayer mosaic	
Protective color filter	Hoya CM500S (IR cut-off 650nm)	
Shutter control	Electronic global shutter / progressive scan readout	
Number of pixels	1.4 Megapixel, 1392 × 1040	
Max scaled resolution (PC only)	3.3 Megapixel, 2088 × 1560	
Sensitive area	9mm × 6.7mm	
Pixel size	6.45µm × 6.45µm	
Color depth	36 Bit	
A/D converter	12 Bit	
Dynamic range	> 62 dB	
Readout noise	$\sigma < 3$ LSB (12 Bit) typical	
Full well capacity	16000 electrons	
Exposure time	5 µsec - 600 sec	
Dark current	0.22 LSB/sec at 12 Bit typical	
Quantum efficiency	Relative: Blue 475nm 74%; Green 540nm 95%; Red 620nm 100%	
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 binning modes	
Cooling	Active Peltier thermoelectric cooling element	
Cooling temperatures	$\Delta -20^\circ\text{K}$ to ambient	
Region of interest	Freely adjustable in 1 pixel steps from 1 × 1 up to full resolution	
Image Formats	Pixels	Speed f.p.s.
Full frame fast	1392 × 1040	15
Full frame HQ	1392 × 1040	7.5
Binning 2 × 2 fast	696 × 520	30
Binning 2 × 2 HQ	696 × 520	15
Binning 4 × 4 fast	348 × 260	60
Binning 4 × 4 HQ	348 × 260	30
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, 2GHz, 512MB RAM 24 Bit graphics, 1024 × 768, CD-ROM drive 4-pin or 6-pin FireWire OHCI or free PCI slot	G4 or G5, 512MB RAM CD-ROM drive
Supported operating systems	Windows 2000, Windows XP	MAC OS X
Software	Leica DFC Twain 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	
Physical and Environmental		
Power consumption	~5 W	
Power supply	Via FireWire cable	
Housing	Aluminum die cast	
Size	132 × 74 × 69 mm ³	
Weight	503g	
Operating temperature range	+5 to +35°C	
Relative humidity	10%..80% non-condensing	

Winner 2005



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www.leica-microsystems.com/DFC300_FX

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