



# Leica DFC290

Digital FireWire Color Camera  
for Analysis and Documentation

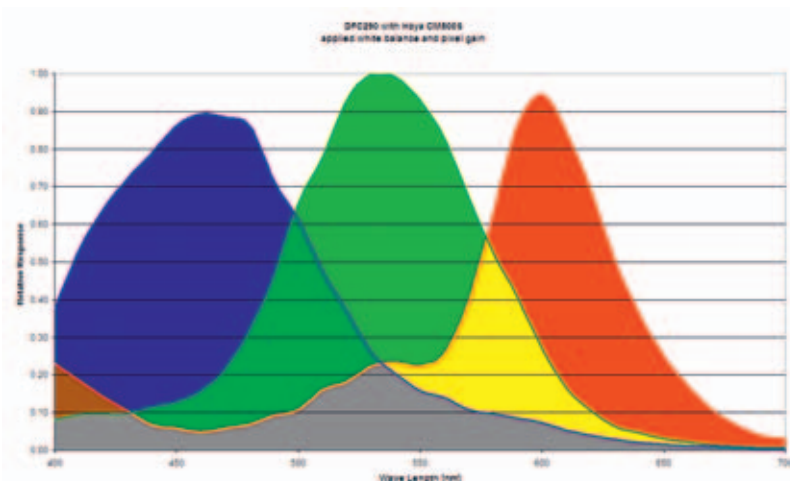
# Fast and Easy Analysis and Documentation

Leica Microsystems bridges the gap between high performance and ease of use. With the high pace of technology, digital recording has become increasingly important for many microphotography applications. From image capture to review, digital imaging requires fast, economical, efficient and flexible processing.

The Leica DFC290 is a powerful color digital camera system that offers fast live imaging via FireWire-technology. This new generation camera uses the latest sensor-technology to provide accurate documentation and presentation in real-time. Leica technology continuously evolves to perform the most complex imaging applications, quickly and easily. The camera's flexibility allows it to conveniently integrate with any microscope system.

## Feature Highlights

- Fast, full color real-time live imaging
- 3 Megapixel standard resolution (2048 × 1536 Megapixel)
- 1024 × 768 live preview with up to 25fps (depending on screen size and exp. time)
- Several user selectable image sizes from small (VGA) to huge (7 Megapixel)
- CMOS sensor with Bayer Array RGB
- 10 bit analog-digital conversion for optimum color reproduction
- Color or grayscale images
- Large pixel area for high sensitivity
- Integration times of 0.1 msec to 1 seconds
- Intuitive user interface with convenient image capture and image editing functions
- Digital focus finder
- Online histogram for image optimization
- Shading correction applied to live and captured images
- FireWire interface for compatibility with a wide range of computers
- Customizable, reproducible multi-user settings
- Ultra compact metallic housing for thermal noise dissipation



### High Resolution Imaging

The Leica DFC290 provides sharp, richly contrasted images that reveal the most minute detail. Color rendering, image geometry and dimensions are correct and ensure accurate results in image analysis, measurement and image processing. The heart of the camera consists of a sensitive 1/2" CMOS Sensor and the image is digitized with a 10-bit AD converter that features a 600:1 dynamic range. This is equivalent to more than 9 analog aperture steps and reveals the finest details for objects of rich contrast.

### Experience Real-time Video

The Leica DFC290 provides flicker-free, real-time live images so that can be focused and orientated directly from a computer display. With real-time speeds in excess of 25 frames per second, the microscopic image plays back at video rate (depending on live video size and exposure time).

### Store Individual Image Settings

Auto white balance and brightness are regulated for the entire image and provide exact images. Alternatively, the user can define a freely-positionable gray balance reference area. The online histogram provides a function for interactively adjusting gamma, contrast and brightness. Individual image settings can be saved in configuration files and retrieved any time for true reproducible imaging.

### Powerful Software for PC

The powerful Leica Application Suite (LAS) software, included with the camera, provides a wide range of image capture and processing functions. Easy handling and user-friendly application play an important role in the design of the software so that both first-time and experienced users can take full advantage of digital technology within minutes. The captured images can be edited, printed or archived immediately and reproduced at any time while retaining perfect image quality. Also included with the camera is a TWAIN camera driver which can be used to transfer images to Leica IM50 Image Manager and to other image processing programs. Additional smart camera options are available for convenient setup of camera parameters. The Leica DFC290 offers advanced auto white and contrast exposure that provides perfect camera set-up with a click of a few buttons.

### Leica FireCam Software for MAC

The Leica DFC290 camera also comes with free Leica FireCam software to make on-screen digital recording on MAC computers, quick and easy. In the same manner as LAS, Leica FireCam includes numerous intuitive image capture and editing functions to ensure that high quality recorded images are immediately available for viewing and processing. FireCam is fully supported on Intel Duo Macs.

## Equipment Components

### Order numbers

- |           |  |
|-----------|--|
| 12730 080 | Leica DFC290 camera kit including:<br>Leica DFC290 Camera<br>Leica DFC Twain Software for PC<br>Leica Application Suite for PC<br>Leica IM50 Image Manager for PC<br>Leica FireCam Software for MAC<br>2.5m, 6 to 6 pin FireWire cable |
| 12447 053 | OHCI FireWire PCI Card for PC's without FireWire Interface   |
| 12447 066 | Laptop PCMCIA FireWire interface card  |
| 12447 140 | FireWire cable – 4m, 6 to 6 pin  |
| 12730 180 | FireWire power kit –<br>FireWire hub with power supply for use with 4-pin FireWire or Unpowered 6-pin FireWire   |



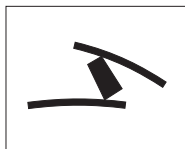
The Leica S6D Stereomicroscope with Leica DFC290 Digital Camera and Leica LAS Software

# Technical Data: Leica DFC290



Digital Camera	Leica DFC290	
Camera type	Digital camera for microscopy with control software	
Sensor	Progressive scan CMOS	
Sensor Grad/Size	6.55mm × 4.92mm (Type 1/2)	
Color filter	RGB Bayer mosaic	
Protective color filter	Hoya CM500S (IR cut-off 650nm)	
Shutter control	Electronic rolling shutter/progressive scan readout	
Number of pixels	3 Mpixel, 2048 × 1536	
Max scaled resolution (PC only)	7 Mpixel, 3072 × 2304	
Pixel size	3.2 μm × 3.2 μm	
Color depth	30 bit	
A/D converter	10 bit	
Dynamic range	Typ > 55 dB / 600:1	
Readout noise	σ < 1.8 LSB (10 bit) typical	
Exposure time	0.1 msec – 2 sec	
Gain control/Offset control	1× – 3.6× / 0.9dB / permanent automatic offset correction	
Live image	On computer screen	
Shading correction	Yes, stored for all formats	
Cooling	N/A	
Cooling temperatures	N/A	
Region of interest	Freely adjustable in 2 pixels steps from 2 × 2 up to full resolution	
<b>Image formats</b>	<b>Pixels</b>	<b>Speed - Fast / HQ*</b>
Full frame	2048 × 1536	10 / 5 fps
XGA	1024 × 768	18 / 16 fps
VGA	640 × 480	30 / 14 fps
Modes	All formats in Fast (48MHz) or High Quality (24MHz) modes, trigger or free running	
<b>Computer</b>	<b>PC</b>	<b>MAC</b>
Min. computer configuration	Pentium 4, 2.5GHz, 1GB RAM 24 bit graphics, 1024 × 768 display 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 X
Software included	Leica DFC Twain Leica Application Suite Leica Image Manager	Leica FireCam
<b>Interfaces</b>		
Optical	c-Mount	
Recommended video adapter	0.5× or 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	
<b>Physical and Environmental</b>		
Power consumption	~4 W	
Power supply	Via FireWire cable	
Housing	Aluminum die cast	
Size	112 × 74 × 68.4mm <sup>3</sup>	
Weight	340g	
Operating temperature range	+5°C – +50°C	
Relative humidity	10%..90% non condensing	

Winner 2005



Innovationspreis  
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The World's First Innovation Award

[www.leica-microsystems.com/DFC290](http://www.leica-microsystems.com/DFC290)

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