Technical Data: Leica DFC295 / Leica DFC290 HD

Digital Camera	**Leica DFC295**		**Leica DFC290 HD**	
Camera type	Digital camera for microscopy with control software			
Sensor	Progressive Scan CMOS, Micron MT9T001			
Sensor grade/size	6.55mm × 4.92mm (type 1/2)			
Color filter	RGB Bayer mosaic			
Protective color filter	Hoya CM500S (IR cut-coating filter at 650nm)			
Shutter control	Electronic rolling shutter/Progressive scan readout			
Number of pixels	3 megapixel, 2048 × 1536			
Max. scalable resolution (only PC)	7 megapixel, 3072 × 2304			
Pixel size	3.2µm × 3.2µm			
Color depth	30 bit			
A/D converter	10 bit			
Dynamic range	Type > 55dB / 600:1			
Readout noise	σ < 1.8 LSB (10 bit) typical			
Exposure time	0.1 msec – 2 sec			
Gain controll/Gain	1× – 4× / 0 – 12 dB			
Shading correction	Yes, stored for all formats			
Region of interest	Freely adjustable in 2-pixel steps from 2 × 2 up to full resolution			
Live image	DFC295 with PC Monitor		DFC290 HD with Flat Panel TV and PC Monitor	
Image formats - resolution in fps	**fast (48MHz)**	**HQ (24MHz)**	**FireWireA**	**FireWireB**
Full frame - 2048 × 1536	12	6	5	9
1080p - 1920 × 1080	-	-	7	12
UXGA - 1600 - 1200	16	9	8	12
SXGA - 1280 - 1024	18	13	12	16
720p - 1280 - 720	-	-	15	18
XGA - 1024 × 768	22	17	20	20
VGA - 640 × 480	32	25	32	35
Minimum system requirements PC	Pentium 4, 2.5GHz, 1GB RAM, 24-bit graphics card, CD drive, FireWire or free PCI slot			
Supported operating systems	Windows XP Service Pack2, Windows Vista (Ultimate recommended)			

Interfaces		
Optical	C-Mount	
Recommended video adapter	0.5× or 0.63×	
Digital output	FireWire IEEE1394-b 9-pin	HDMI 1.3 and FireWire IEEE1394b 9-pin

Physical and Environmental	
Power consumption	~4W
Power supply	via FireWire cable
Housing	Aluminum die cast
Size	112 × 74 × 68.4mm³
Weight	340g
Operating temperature	+5 °C – +50 °C
Relative humidity	10%..90% non-condensing

Order numbers	
12 730 209	Leica DFC295 Camera kit comprising: Leica DFC295 Camera, Leica software, FireWire cable a-b
12 730 202	Leica DFC290 HD Camera kit comprising: Leica DFC290 HD Camera, Leica software, FireWire cable b-b, HMDI cable 3m
12 730 183	PCI-32 FireWire-a card for PCs without FireWire
12 730 210	PCI-Express FireWire-b card for PCs without FireWire
12 447 066	PCMCIA FireWire-a interface card for Laptops
12 447 120	FireWire-cable, 3m, a-a, 6/6-Pin
12 730 186	FireWire-cable, 3m, b-b, 6/9 Pin
12 730 187	FireWire-cable, 3m, a-b, 9/9-Pin
12 730 211	HDMI-cable, 3m
12 730 188	FireWire Power kit comprising: 110/220V power pack for 4-pin FireWire-a or 6-pin FireWire-a

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Leica MICROSYSTEMS

Leica DFC295 / DFC290 HD

Digital cameras for efficient and comfortable documentation

Living up to Life

Leica MICROSYSTEMS

Fast and easy presentation and documentation

The **Leica DFC295** and **DFC290 HD** cameras are powerful digital color cameras for real-time image capture. The cameras of the latest generation use state-of-the-art technologies in the area of digital imaging and permit precise documentation and presentation of microstructures. Leica technologies are continuously further developed with the aim of making even the most complex photograph applications as user friendly as possible. Furthermore, the cameras can be integrated without any problems in any microscope system. Whether for documentation, presentation or critical analysis – there is a Leica camera available for every application area.

In contrast to the Leica DFC295, the DFC290 HD has an additional HDMI interface on which a live image can be displayed on the output parallel to the FireWire (Dual Live Stream).

As soon as you connect an HD-compatible display device (projector, flat screen TV), you can view the live image in previously unachieved quality.

Full HD 1080

The HD revolution!
High Definition with regard to image and color quality goes far beyond anything previously experienced. The result is pin-sharp images, true to detail and excellent color reproduction. HD technology provides up to five times more detail richness than all previous formats – with a clarity and resolution that will fascinate you.

720p HD ready
This format achieves approximately double the detail resolution of PAL or NTSC.

1080p Full HD
This superior format offers the currently best available resolution and detail sharpness on Flat Panel TVs and Full HD projectors.

High-performance Leica LAS software
The Leica Application Suite software 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, printed out and reproduced as often as you wish without any loss in quality.
The TWAIN driver included in the delivery can be used to transfer photographs to other image editing programs without any problems. In addition, intelligent camera options allow you to conveniently set up the camera parameters. Leica cameras have automatic white balance and advanced illumination control and are thus ready to produce perfect images in seconds.

High-resolution photographs
The Leica DFC295 and DFC290 HD cameras provide sharp, high-contrast photographs that are extremely true to detail. Correct color reproduction, exact image geometry and precise dimensioning guarantee optimal image analysis, measurement and image processing results. The core of the camera is a sensitive 1/2" CMOS sensor with a 3M-pixel resolution.

Video in real time
The Leica cameras allow you to take flicker-free live images in real time. They also allow you to focus and align the photographs directly at the PC. The microscope image appears on the monitor with practically no delay in full camera resolution and at a rate of more than 25 images per second (depending on the size of the live video and the exposure time).

Saving individual image settings
Automatic white balance and brightness is regulated for the entire image, which also ensures the exact reproduction. Alternatively, the user can define a freely selectable reference range for the gray balance. The online histogram permits precise setting of the gamma, contrast and brightness values. Individual image settings can be saved in configuration files and called up again at any time.

DFC295

Highlights

- Fast, full-color live image capture in real time
- 3 megapixel standard resolution (2048 × 1536 megapixel)
- 1024 × 768 live preview with up to 25 images per second (depending on monitor size and exposure time)
- Various image sizes from small (VGA) to very large (7 megapixel)
- CMOS sensor with Bayer Array RGB
- Photographs in color or in gray steps
- Large pixels for high sensitivity
- Digital focusing aid
- Online histogram for image optimization
- Shading correction for live image and captured images
- FireWire interface for compatibility with a large number of computers
- Adaptable, savable settings for several users

DFC290 HD

- HDMI output for direct display on Flat Panel TVs or Full HD projectors
- CIE Lab color processing in the camera head
- Autonomous image output without PC possible
- Simultaneous image reproduction on PC monitor (FireWire) & Flat Panel TV (HDMI)

Leica stereomicroscope S8APO with LED2500 illumination
Digital camera Leica DFC290 HD with Dual Live Stream on large monitor and PC monitor