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DP73 specifications

Item		Specifications
Camera type		Single chip color CCD (pixel shifting) Cooling system: Peltier device (max. Ta -10 ºC)
Imaging Sensor	Size	1/1.8 inch 2.01 megapixels color CCD
	Scanning mode	Progressive
Camera mount		C-mount
Effective image resolution		4800 x 3600 (pixel shifting, 3CCD mode) 2400 x 4800 (pixel shifting, 3CCD mode) 1600 x 1200 (1 x 1, 3CCD mode) 800 x 600 (1 x 1) 800 x 600 (2 x 2) ROI
Sensitivity		ISO 100/200/400/800/1600
A/D		14 bit (effective pixel : 12 bit@16 bit mode image)
Metering modes	Mode	Auto, SFL-Auto, Manual
	Adjustment	±2.0 EV step: 1/3 EV
	Time	23 µs to 60 s
Metering modes		Full image, 30%, 1%, 0.1%
Binning		2 x 2
Live frame rate*		1600 x 1200 (1 x 1): 15 fps 800 x 600 (1 x 1): 15 fps 800 x 600 (2 x 2): 27 fps
Still image transfer time*		4800 x 3600 (1 x 1): approx. 4 s
Color space		sRGB, AdobeRGB
Image file format		File formats supported by cellSens software
OS		Windows 7 Professional/Ultimate (64 bit)
Dimensions, weight	Camera interface cable	Approx. 2.8 m/approx. 0.23 kg
	External trigger cable	Approx. 0.2 m/approx. 40 g

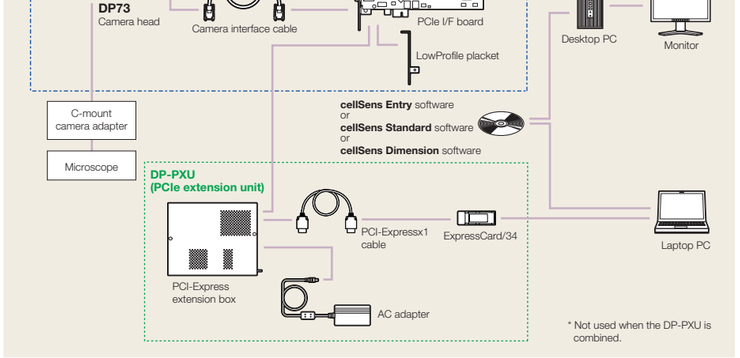
* For exposure times ranging from 23 µs to 65 ms, image acquisition time may take longer if several tasks are active in the background.

・Replacement parts are available for 5 years after purchase.

DP73 system requirements

	PC/AT compatible
CPU	Intel Core series 1.8 GHz or later (Core2 Duo E6400 2.13 GHz or later recommended)
RAM	4 GB or more
HDD	Free space of 1 GB or larger (at the time of installation)
Graphic	VGA card for PCI-Express x16 with display of 1280 x 1024 or better, 32-bit color per pixel Onboard graphic also available
Extension slot	PCI-Express x1 Rev. 1.0a or later Compatible with half size or LowProfile PCIe board (106.7 mm x 174.6 mm)
OS	Windows 7 Professional/Ultimate (64 bit)
Power supply	250 W or more (with CE marking) Unoccupied FDD power cable, HDD power cable (4-pin size), or Serial ATA power cable must be available

DP73 system diagram



• Please contact your local representative for cellSens Dimension software and WiDER model.

DP73 camera head dimensions

(unit: mm)



Weight : approx. 0.9 kg

Specimen(s) courtesy of :
JAPANESE FOUNDATION FOR CANCER RESEARCH
Cancer Chemotherapy Center
Yuji Mishima, Ph.D.
Kiyohiko Hatake, M.D., Ph.D. (page 4, upper)

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Cancer Institute, Cancer Institute Hospital
Department of Pathology
Kengo Takeuchi, M.D., Ph.D. (page 3, lower right)
Futoshi Akiyama, M.D., Ph.D. (page 2, lower)
Yuichi Ishikawa, M.D., Ph.D. (page 3, upper; page 3, lower right)

ECO-PRODUCTS

DP73 is the environmental conscious product according to OLYMPUS' own standards.

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- **OLYMPUS CORPORATION is FM553994/ISO9001 certified.**
- Windows is either registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. All other company and product names are registered trademarks and/or trademarks of their respective owners.
- Images on the PC monitors are simulated.
- Specifications and appearances are subject to change without any notice or obligation on the part of the manufacturer.

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DP73

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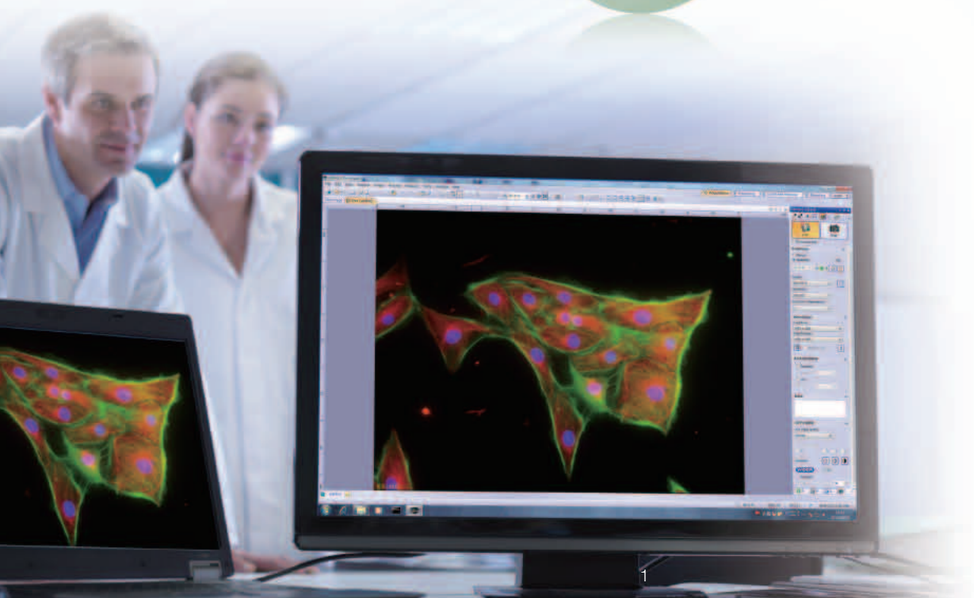


Not for clinical diagnostic use.

Exceptional Resolution and Color Reproduction for Clearly Outstanding Value

The DP73 displays live digital images with gradual smoothness and combines exceptional resolution with faithful color reproduction. It also offers outstanding operational ease, even when focusing and moving the observation site, to deliver a feel similar to viewing an image directly through the microscope. Furthermore, the DP73 supports the creation of digital brightfields and fluorescence documentation, and has conference presentation capability, thus providing unrivalled value from the first use.





Improved Resolution

High-level Performance Display for Live Images during Low Magnification Observation

■ Live, High-definition Images at 15 Frames per Second, Without Compression

High-definition 1600 x 1200-pixel images can be displayed live at a rate of 15 frames per second, without compression. Such imaging quality enables even the finest cellular regions to be observed clearly and distinctly without deterioration, while focusing is made stress free. Do away with the difficulties of observing microstructures and fine lines in low magnification and move forward to the clarity of the DP73's optimized conference-viewing application.

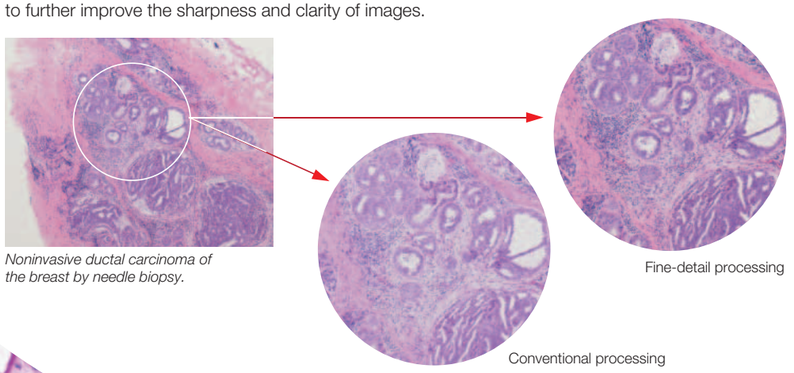


Live, High-definition, 1600 x 1200-pixel Images Free from Compression

Fine-detail Processing for Sharp, Intricate Results

■ Improved Resolution, with Reduced Pseudo-colors and Moiré Artifacts

The DP73 has the power to minimize pseudo-colors and moiré artifacts that can otherwise have a negative impact on resolution and cause problems during low magnification observation. This is because it features the same new algorithms and fine-detail processing for enhanced resolution as those built into high-grade Olympus digital SLR cameras. The DP73 also optimizes the resolving power of the objectives to further improve the sharpness and clarity of images.



Noninvasive ductal carcinoma of the breast by needle biopsy.

Fine-detail processing

Conventional processing

Improved Resolution

Unparalleled 17.28 Megapixel Resolution

■ New 3-CCD Mode Enables Pixel Shifting of 3 Colors for Each Pixel

A 2.01 megapixel color CCD is combined with pixel-shifting technology to result in the capture of an overwhelmingly high 17.28 megapixel resolution. In addition to conventional 3 x 3 pixel shifting of one color per pixel, the DP73 features a 3-CCD pixel shift mode that enables three-color image resolution (RGB) within a single pixel to improve resolution even more.

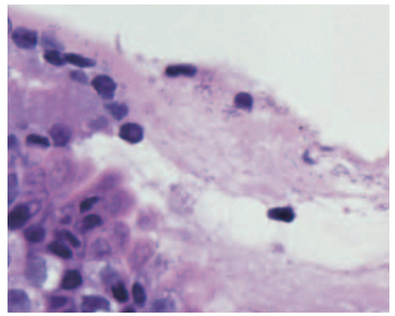


Image Taken in 3-CCD Mode (4800 × 3600)

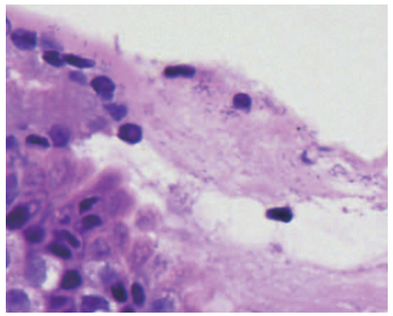


Image captured in Standard Mode

A high-power view of gastric mucosa with H. pylori infection.

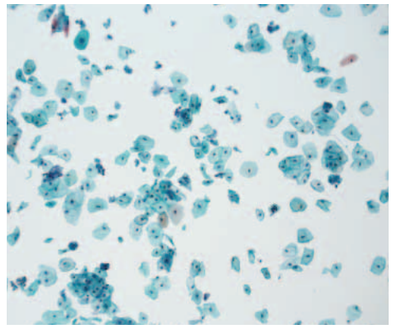
Advanced Color Reproduction

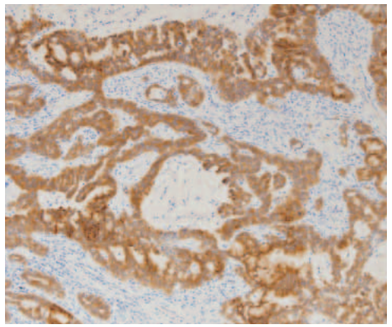
Subtle Differences in Color Reflected in a Variety of Tones

■ Enhanced Color Reproduction in Previously Problematic Portions

Through supporting AdobeRGB*, the DP73 faithfully renders a broad color gamut. It also features a new color reproduction algorithm, subtle differences in colors that have been difficult to separate until now—such as brown, blue and purple—can be reproduced with exceptional accuracy.

*Color reproduction fidelity depends on monitor specifications. Monitors supporting AdobeRGB are required to accurately reproduce images recorded in AdobeRGB mode.





Immunohistochemical features of EML4-ALK fused-gene lung adenocarcinoma, showing cribriform structures and mucin production. Tumor cells are homogeneously positive for ALK antibody (iAEP method: Takeuchi et al. Clin Cancer Res, 15:3143-, 2009)

New Fluorescence Image Quality

ISO1600 Sensitivity Delivers Clear Display Even for Faint Fluorescence Signals

■ Achieve Enhanced Fluorescence with High Sensitivity and Low Noise

Capture images across a broad sensitivity range of ISO100-1600 through the incorporation of features including a new CCD drive system, reduced circuit noise and optimized image processing. These technologies also support the capture of bright, sharp fluorescence images with minimal noise.

Breast cancer cells spiked in peripheral blood. Immunocytochemistry (cytokeratin) and FISH (Her-2 and CEP17) were visualized at the same time. The nuclei was stained with DAPI.

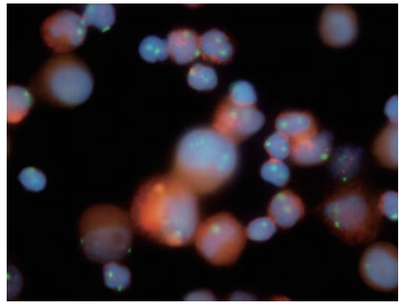
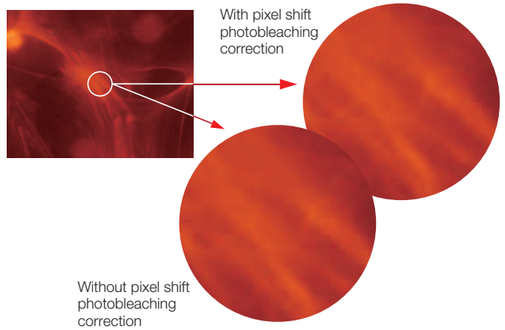


Image Capture that Adjusts for Fluorescence Photobleaching

■ Advanced Algorithm Corrects for Problems of Pixel-shift Photobleaching

Conventional Digital cameras that make use of pixel-shifting technology can sometimes compromise images due to changes in brightness that can result from photobleaching during pixel shift. The DP73, however, features a pixel shift photobleaching correction function that automatically corrects for changes in gradations of color. So, even if pixel shifting has taken place, the second and subsequent images are captured with histograms identical to the first—resulting in mages that are clear, sharp, and uncompromised.

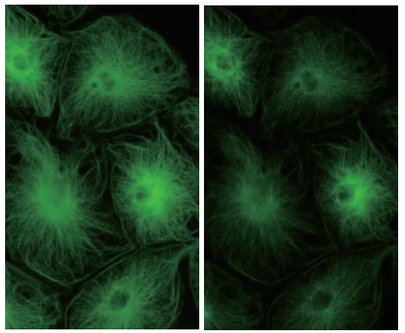


Rich, Reliable Color Gradations Free from Over or Underexposure

■ WiDER Optimizes Tonal Curves and Gain in Individual Image Regions

Say goodbye to tedious, post-capture image processing with WiDER*—an application that optimizes tonal curves and gain in each region of the image in real time to automatically generate images that have broad dynamic range but are free from under- or overexposure. Efficient and highly effective, this application takes fluorescence imaging methods such as FISH and multi-staining to a whole new level of dynamism.

*The function is available in DP73 configurations supporting WiDER.

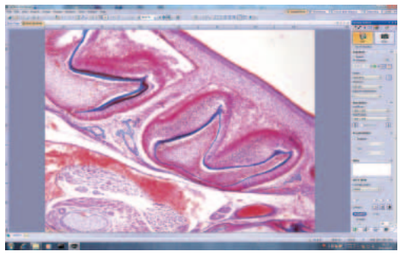


With correction | Without correction

A New Level of Imaging Convenience and Functionality

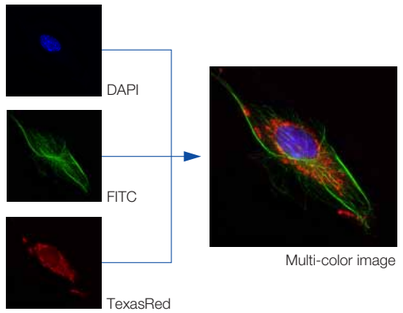
■ An Array of Functions from Image Capture to Image Processing, to Measurement and Analysis

In addition to basic functions such as live image display, image adjustment, image capture, and post-capture image file management, the DP73 also provides a full complement of functions ranging from image processing and various types of measurement to report generation.



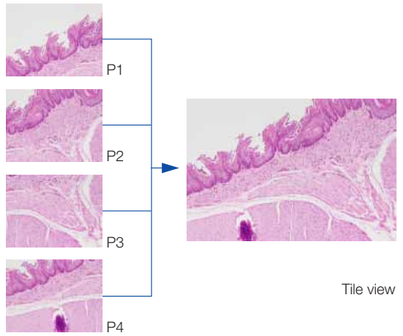
■ High-quality Capture of Multi-color Images

With *cellSens Standard*, the DP73 enables high-quality, multi-color composites to be created from multiple images captured at different wavelengths. *cellSens Dimension* simplifies the image capture of multi-stain specimens at different wavelengths and synthesizes the composites automatically.



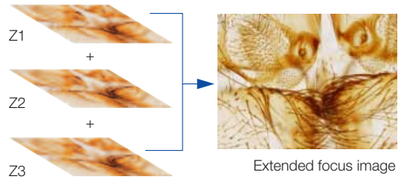
■ High-accuracy Alignment for High-resolution Macro Images

With *cellSens Standard*, the overlapping parts of multiple adjacent images are automatically recognized and the images can be aligned and stitched. Furthermore, *cellSens Dimension* can be used in combination with the *ultrasonic scanning stage* of the BX63 motorized microscope to automatically stitch images together and produce seamless, high-quality macro images made even better through use of the correction function.



■ Extended Focus Imaging for Images that are Entirely In Focus

Because *cellSens Dimension* enables images to be captured while varying depth within the sample, sharp focus can be achieved across the entire image. Images that are entirely in focus can also be created from groups of previously captured images.



cellSens is not for clinical diagnostic use

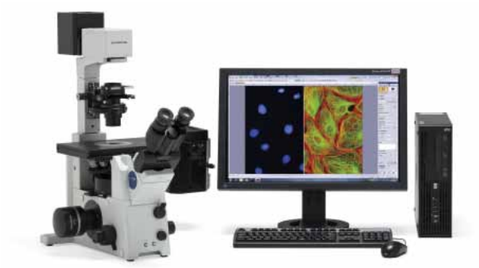
■ Compatible with Laptop PCs

Expansion units for laptop PCs with an ExpressCard slot incorporated are also available.
*Please contact your local representative for the details.

Major functions of cellSens software

	cellSens Standard	cellSens Dimension
Image acquisition	✓	✓
Image display	✓	✓
Hardware control	✓	✓
Image integration	✓	✓
Measurement	✓	✓
Image processing	✓	✓
Image analysis		✓
Image acquisition using the time-lapse function	✓	✓
Time-lapse and Z-axis stack 3D-image acquisition		✓
Multiple image alignment (panorama)	✓	✓
Motorized multiple image alignment (panorama)		✓
Online multiple image alignment (panorama)		✓
Extended Focus Image		✓
Fluorescence unmixing		✓
Deconvolution		✓
Phase analysis		✓
Reporting		✓

■ DP73 configuration examples



DP73 with IX71 configuration



DP73 with BX63 configuration

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