

# OLYMPUS®

Your Vision, Our Future

DIGITAL CAMERA

## DP71

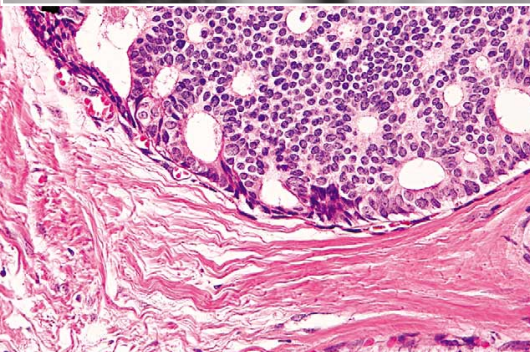
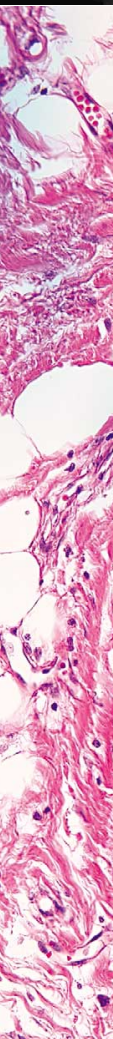
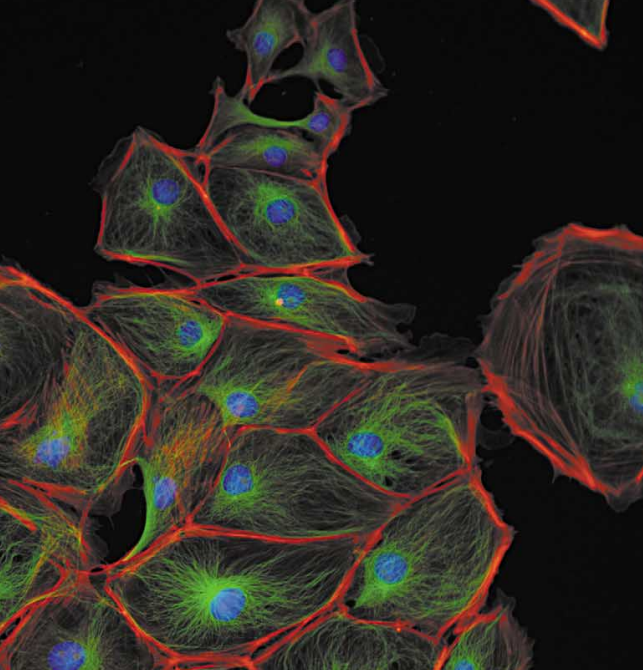
12.5 million pixel resolution

**NEW**

### ***Advanced digital micro-imaging***

*With unmatched performance, benefit from a camera system designed to capture exactly the image you want!*





OLYMPUS  
DP71

## ***High-speed hardware and easy-to-use software for better-than-ever images from your microscope***

*The DP71 rapidly delivers images with highly accurate color along with a sharp, vivid, real-time display.*

*The high-sensitivity, high-resolution performance is complemented with advanced, easy-to-use multifunctional software that provides powerful support for a broad range of microscope imaging requirements.*

*Designed for users who want top-quality results as quickly as possible, the DP71 provides the meticulous color rendition necessary for highly accurate brightfield images as well as the high level of sensitivity required for distinguishing slight but crucial color differences in high-resolution fluorescent images.*



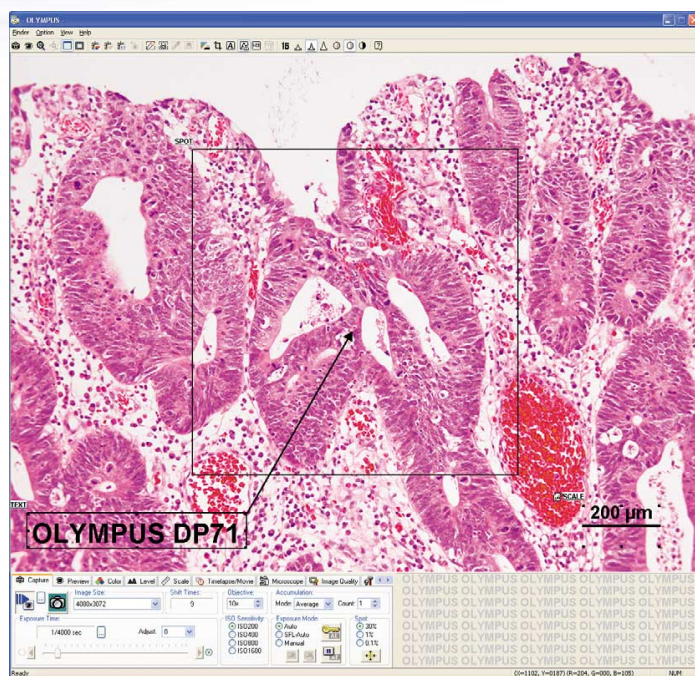
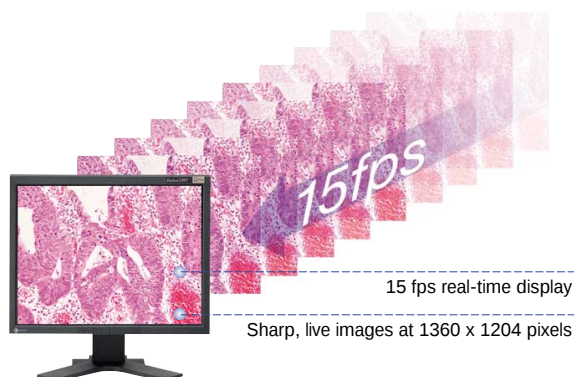
IX71 and DP71 configuration

BX51 and DP71 configuration

## The fast, seamless, and detailed live display makes all aspects of observation and focusing effortless

### High-resolution images displayed live at 15 frames per second

For easy, stress-free observation, the DP71 provides a seamless live display of high quality (1360 x 1024 pixels) images at 15 fps. Dim fluorescent signals can be previewed clearly, easily, and comfortably using 2 x 2 or 4 x 4 binning with no reduction in display speed. A real-time frame averaging function minimizes noise and optimizes the display resulting in low-noise live images.

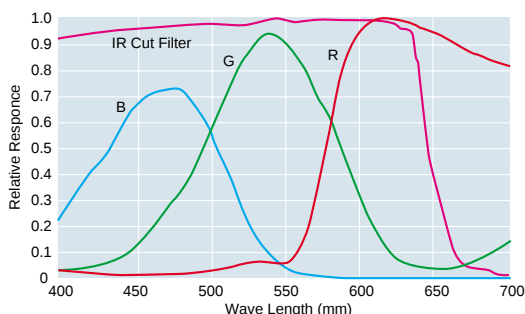


## Fast, high-resolution image acquisition with outstanding color fidelity

### 12-bit digitization per RGB color channel for highly accurate 36-bit color results

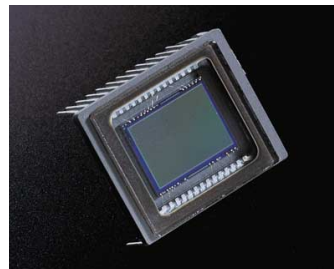
Using a series of RGB filters (Bayer mask) combined with Olympus' color technology produces images with outstanding quality every time. Each RGB color channel contains 12-bits of digitized information (4096 gray levels for precise light intensity discrimination). This ensures a high level of color fidelity along with fine levels of color gradation; necessary for accurately reproducing images of dyed and fluorescent specimens.

#### CCD and IR Cut filter spectral sensitivity characteristics



### Super high-resolution, equivalent to 12.5 megapixels

Pixel-shifting technology is applied to the 1.45 million pixel 2/3" CCD. This results in a 12.5 megapixel, 4080 x 3072 pixels, super high-resolution image.



### Rapid high-resolution image acquisition — 12.5 million pixels equivalent in only 3 seconds

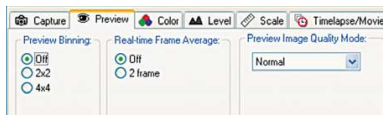
High-speed hardware makes it possible to capture even high-resolution images (equivalent to 12.5 megapixels) in approx. 3 seconds.

\* For exposure times in the range of 1/44,000 ~ 1/15 seconds, image acquisition time may take longer if several tasks, such as file copying, are active in the background.

## Unparalleled high-resolution fluorescent imaging with outstanding color, clarity, and detail

### High sensitivity with noise reduction

The DP71's dedicated 2/3-inch CCD is cooled by a Peltier element to 10°C below ambient, ensuring high-sensitivity, low-noise (equivalent to ISO1600) image capture. In combination with the 2 x 2 and 4 x 4 binning function, this gives sharp, clear results with faint fluorescent signals.

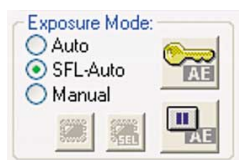


### Bright, low-noise live display, even with dim fluorescent signals

Live images can be displayed in three quality modes. Choose from *standard* (automatic), *medium* or *high*. High quality mode delivers a sharp, clear image display without noise, even for dimly fluorescing specimens.

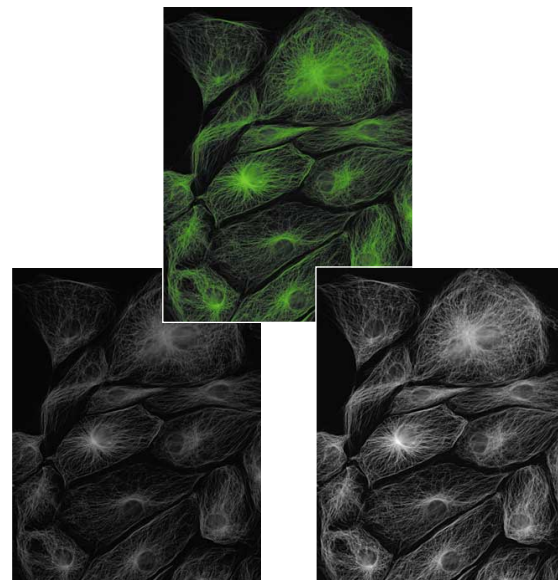
### Accurate automatic exposure for fluorescent and brightfield specimens

The SFL-Auto Exposure Mode makes it easy to acquire fluorescence images, correctly adjusting the ideal exposure time automatically. Auto and manual exposure modes may also be selected.



### Capturing custom grayscale images

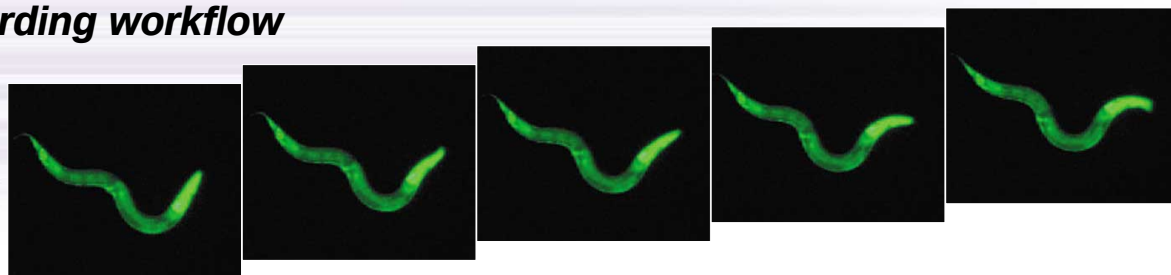
To acquire images in grayscale while maintaining the dynamic range of each RGB color, just select the custom grayscale mode. Sensitivity increases and exposure times can be shortened to limit cell damage.



Normal grayscale mode

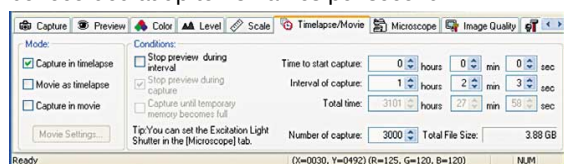
Custom grayscale mode

## Maximize and streamline image acquisition and recording workflow



### Easily record a time-lapse movie or acquire a series of images of a moving specimen

The DP71's time-lapse feature lets you set the starting time of a photo sequence, the duration, the number of images, and thus the chronological development of the whole sequence. With the maximum (1360 x 1024) image size selected, images of a moving specimen can be recorded at up to 15 frames per second.

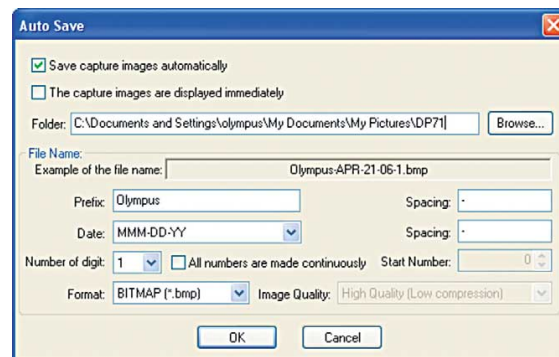


### INPUT/OUTPUT signal allow external triggering

INPUT/OUTPUT trigger signaling is included as standard. Linked to an external shutter, it enables shutter opening/closing according to the available exposure light.

### Automatic file naming and saving

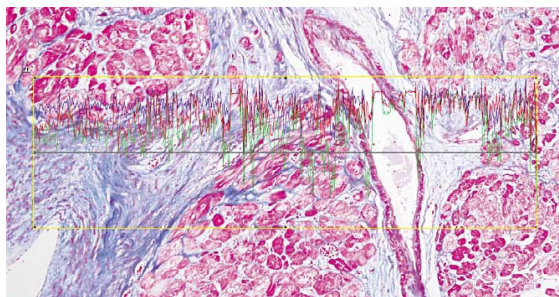
Applies file name, date and other details preselected by the user, and automatically saves them with designated images. Especially convenient for streamlining workflow during continuous/serial image acquisition.



# Choose and apply settings easily according to the specimen and observation method — then capture photos quickly

## ■ Easy, accurate focusing

A focusing indicator function makes focusing easy; a line profile function lets you focus accurately on user-defined regions. Additionally, on live images, the center of the field of view can be magnified up to 2 times.



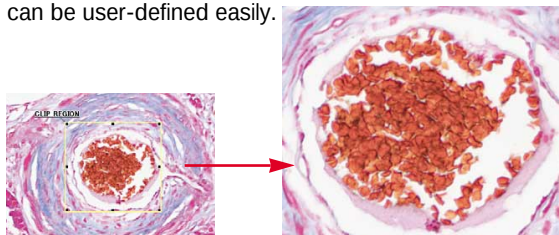
Line profile function

## ■ Instant full-screen display of live images

Press the F11 key or click the toolbar button for instant full-screen display of the current live image. Images can be acquired by pressing the F8 key while in full-screen display mode.

## ■ Minimize file size by framing and clipping a region of interest

A region of interest within the live image can be designated, clipped and saved. The size and position can be user-defined easily.

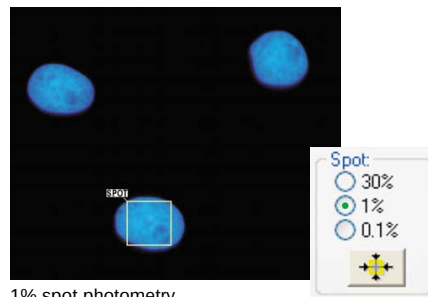


## ■ Customize and memorize user settings

Image acquisition settings are recorded at the time of software shut down and recalled automatically at the next start up. Simply choose your options from a list of settings. Save additional file settings for different users or microscope configurations.

## ■ Photometric areas can be set freely

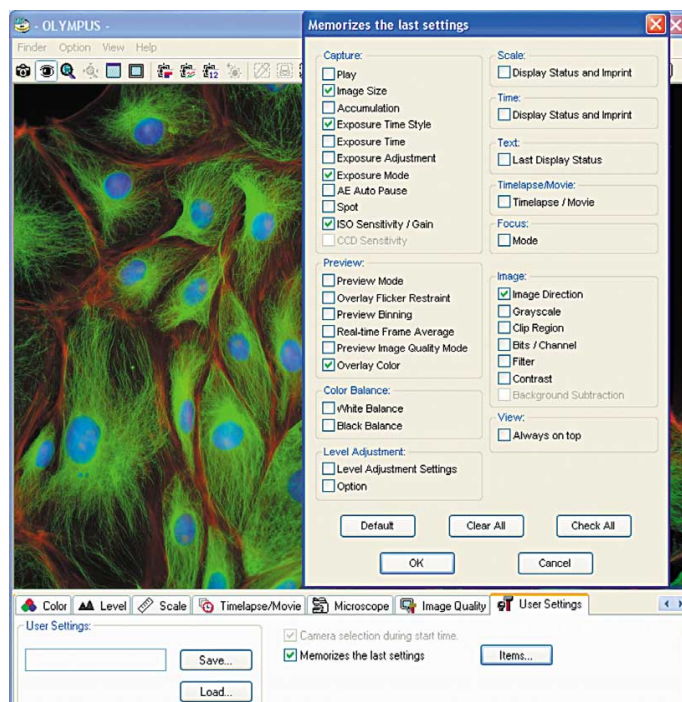
Three photometric metering options, of varying area sizes, are available to optimize specimen exposure: 30%, 1%, 0.1%. The selected area can be moved freely, allowing ideal exposures by eliminating frame changes caused by moving the specimen.



1% spot photometry

## ■ Display a scale bar, annotation, date, and time

A reference scale bar can be displayed, overlaid, and subsequently burned onto a saved image. An annotation function allows the addition of text/captions to an image.



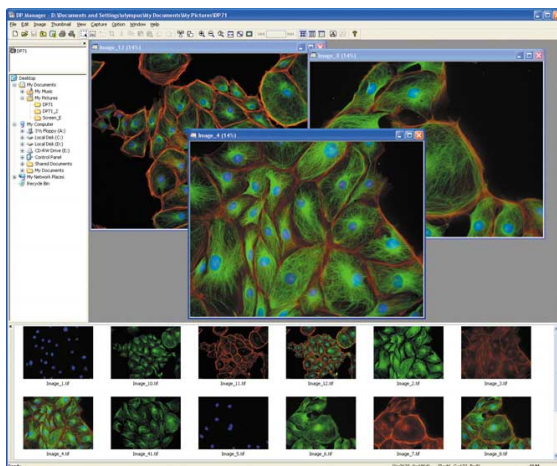
## Quickly find the image you want and start working with it

### ■ Displayed folder tree minimizes clicking

All folders containing stored data are clearly displayed. Finding your image is quick and easy.

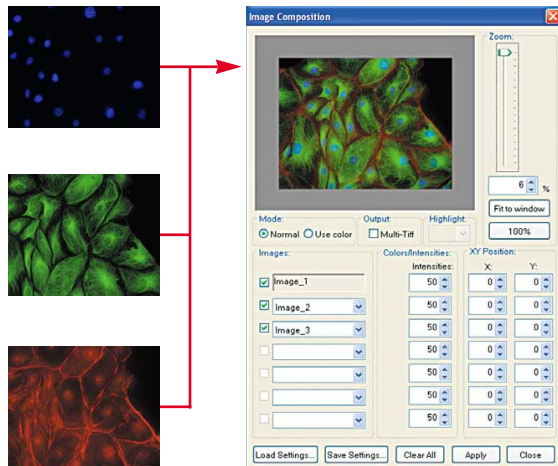
### ■ Easy-to-view thumbnail display

Stored images can be displayed simultaneously as thumbnails; size can be changed by pressing a button. Locating, selecting, and displaying an image is performed quickly. Simply drag and drop!



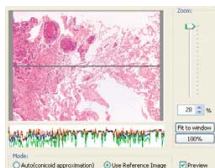
### ■ Overlay fluorescent images

- Combine multiple color or grayscale images (from a single specimen) from different excitation wavelengths, into a single final image.
- For image optimization, the DP71 has a pixel registration function which provides accurate overlay of images from different filter sets.
- Save composite images as Multi-TIFF files.



### ■ Shading adjustment

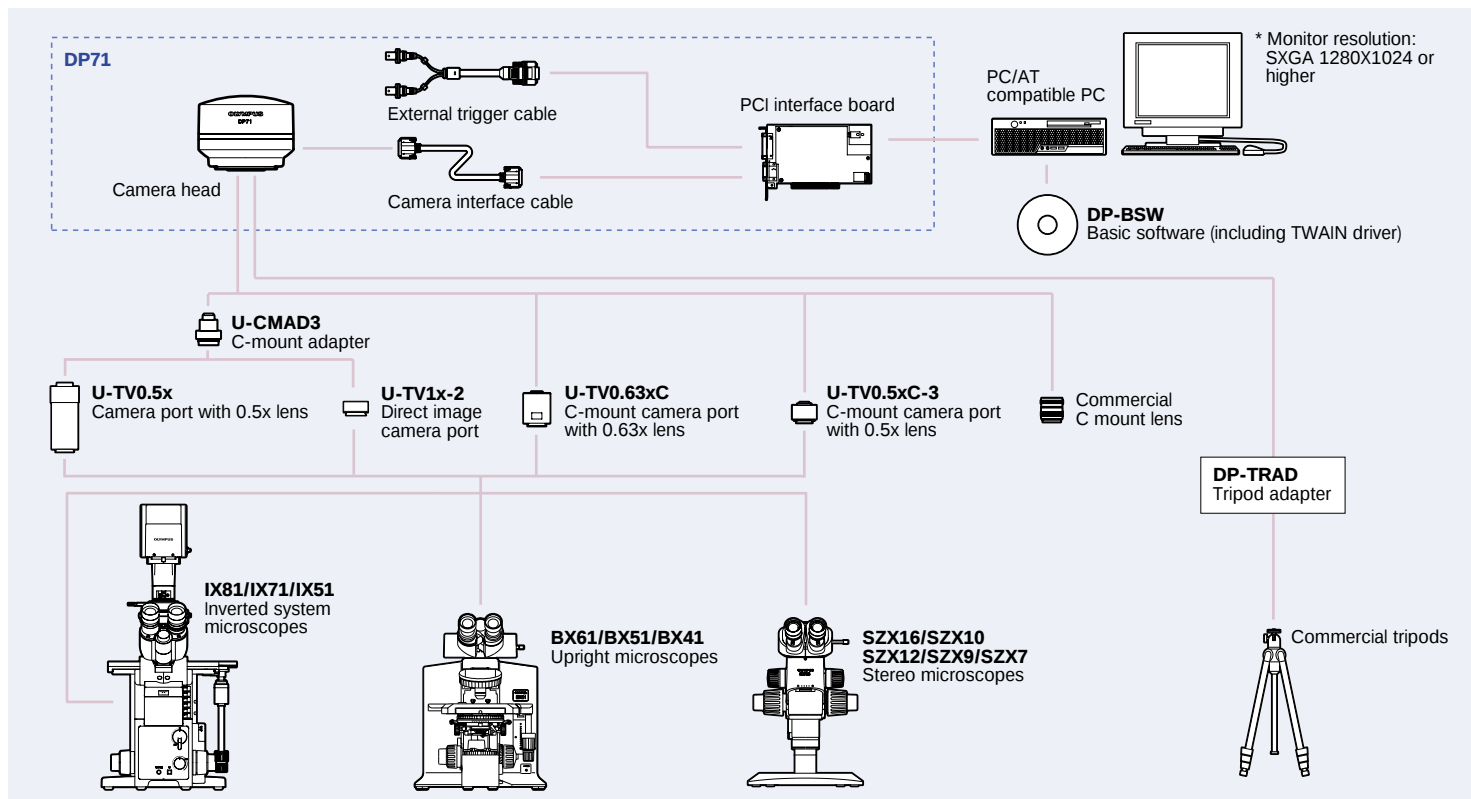
This feature lets you correct uneven areas of illumination in images taken at low magnification, as well as in DIC images.



### ■ Support for TWAIN

Camera control by interfacing with third-party software; process images freely (e.g. Adobe Photoshop and Microsoft applications).

## SYSTEM DIAGRAM



## ■ Tripod adapter/ DP-TRAD

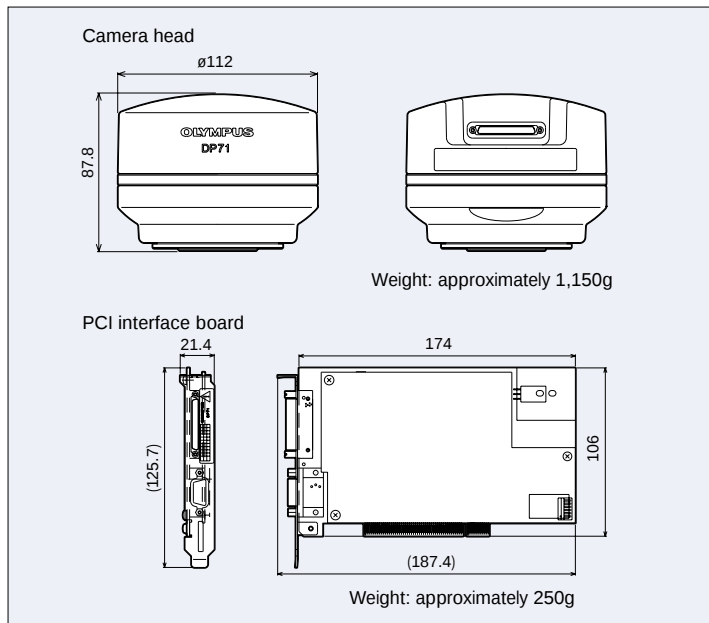
This optional tripod adapter mounts the DP71 on a variety of commercially available tripods.



For use with 2/3 inch compatible C-mount lenses with a back flange of 6 mm or less.

## Dimensions

(unit: mm)



This product contains precision electronic components that can break or malfunction if subjected to strong vibrations or impacts. Please handle with care.

## DP71 specifications

|                              |                        |                                                                                                                                                                                                                           |
|------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Camera                       | Type                   | Single chip color CCD camera                                                                                                                                                                                              |
|                              | Cooling system         | Peltier device (max: Ta-10°C)                                                                                                                                                                                             |
| Imaging sensor               | Size                   | 2/3 inch                                                                                                                                                                                                                  |
|                              | Effective pixels       | 1.45 megapixels<br>(total pixels: 1.5 megapixels)                                                                                                                                                                         |
|                              | Scan method            | Progressive scan                                                                                                                                                                                                          |
|                              | Color filter           | RGB Bayer primary color filter                                                                                                                                                                                            |
| Microscope camera mount      |                        | Standard C-mount                                                                                                                                                                                                          |
| Effective image resolutions  |                        | 4080 x 3072 (12.5 megapixels),<br>2040 x 1536 (3.1 megapixels),<br>1360 x 1024 (1.4 megapixels),<br>680 x 512 (350,000 pixels),<br>2 x 2 binning: 680 x 510 (350,000 pixels),<br>4 x 4 binning: 340 x 250 (85,000 pixels) |
| Sensitivity                  |                        | Equivalent to ISO 200/400/800/1600                                                                                                                                                                                        |
| Bit depth                    |                        | 12-bit per R, G, B                                                                                                                                                                                                        |
| Metering modes               |                        | 30%, 1%, or 0.1% spot metering<br>(user-definable location)                                                                                                                                                               |
| Exposure control             | Exposure modes         | Auto, Auto SFL, manual                                                                                                                                                                                                    |
|                              | AE lock                | Available                                                                                                                                                                                                                 |
|                              | Exposure adjustment    | Exposure adjustment: $\pm 2.0$ EV, step: 1/3 EV                                                                                                                                                                           |
| Exposure time                |                        | 1/44,000 s ~ 60 s                                                                                                                                                                                                         |
| Image integration            | Mode                   | Integral/average                                                                                                                                                                                                          |
|                              | Number                 | 64 frames (maximum)                                                                                                                                                                                                       |
| Binning                      |                        | OFF (1x1), 2 x 2, 4 x 4                                                                                                                                                                                                   |
| Imaging mode                 |                        | Color/standard, Grayscale/custom, Grayscale                                                                                                                                                                               |
| White balance                |                        | Range setting auto/Full range setting auto/manual                                                                                                                                                                         |
| Black balance                |                        | Range setting auto/Full range setting auto/manual                                                                                                                                                                         |
| Image file format            |                        | BMP, TIFF, Multi-TIFF, JPEG, PICT, AVI, MPEG-1                                                                                                                                                                            |
| Time-lapse photography       |                        | Interval duration: 1 s ~ 24 hr 59 min 59 s<br>Number of images: 3000 (max)                                                                                                                                                |
| Image orientation            |                        | Flip/mirror/180°                                                                                                                                                                                                          |
| Interface                    |                        | PCI bus interface board                                                                                                                                                                                                   |
| Image transfer rate          |                        | Approx. 3 s* (at image size 4080 x 3072)                                                                                                                                                                                  |
| Display frame rate           |                        | Maximum 15 frames per second*<br>(at live image size 1360 x 1024)                                                                                                                                                         |
| Preview image quality mode   |                        | Standard/Medium image quality/High image quality                                                                                                                                                                          |
| Motorized microscope control |                        | Controls IX81/BX61<br>(requires additional IX2-BSW or BX2-BSW)<br>• Motorized nosepiece<br>• Motorized mirror unit<br>• Excitation light shutter open/close                                                               |
| Dimensions & weight          | Camera head            | 112 (Ø) x 87.8 (H) mm (not including attachment), approx. 1,150g                                                                                                                                                          |
|                              | PCI interface board    | 187.4 (W) x 125.7 (D) x 21.4 (H) mm, approx. 250g                                                                                                                                                                         |
|                              | Camera interface cable | Approx. 2.8m                                                                                                                                                                                                              |
|                              | Trigger I/O cable      | Approx. 0.2m                                                                                                                                                                                                              |

\* For exposure times ranging from 1/44,000 ~ 1/15 seconds, image acquisition time may take longer if several tasks, such as file copying, are active in the background.  
• Replacement parts are available for 5 years after purchase.

## DP-BSW system requirements

|              |                                                                                                                  |
|--------------|------------------------------------------------------------------------------------------------------------------|
| OS           | Windows XP Professional SP1a or after (Not compatible with x64 Edition)<br>Windows 2000 Professional SP4         |
| CPU          | Intel® Pentium4 1.3 GHz or higher<br>[2.6 GHz or higher, Hyper-Threading dual-core CPU recommended]              |
| Chipset      | Intel® i845 i850 i865 i875 i915 i925 i945 i955 i975 [i865 or later recommended]                                  |
| RAM          | PC2700 or after 512MB or more, operate with dual channel                                                         |
| Graphic      | 32-bit color display of 1280 x 1024 or more<br>*Onboard graphic also available when the chipset is i915 or later |
| Drive        | CD-R/RW, etc.                                                                                                    |
| Case         | Half-size PCI board compatible (PCI Rev. 2.1 or 2.2)                                                             |
| Power supply | 250 W or more (With CE marking)                                                                                  |

\*All brands are trademarks or registered trademarks of their respective owners.



Olympus will contribute to a healthy environment and a sustainable development society.

Specifications are subject to change without any obligation on the part of the manufacturer.

**OLYMPUS**

**OLYMPUS CORPORATION**  
Shinjuku Monolith, 3-1, Nishi Shinjuku 2-chome, Shinjuku-ku, Tokyo, Japan  
**OLYMPUS LIFE AND MATERIAL SCIENCE EUROPA GMBH**  
Postfach 10 49 08, 20034, Hamburg, Germany  
**OLYMPUS AMERICA INC.**  
3500 Corporate Parkway, Center Valley, Pennsylvania 18034-0610, U.S.A.  
**OLYMPUS SINGAPORE PTE LTD.**  
491B River Valley Road, #12-01/04 Valley Point Office Tower, Singapore 248373  
**OLYMPUS AUSTRALIA PTY. LTD.**  
31 Gilby Road, Mt. Waverley, VIC 3149, Melbourne, Australia.

**OLYMPUS LATIN AMERICA, INC.**  
5301 Blue Lagoon Drive, Suite 290 Miami, FL 33126, U.S.A.  
**OLYMPUS (BEIJING) SALES & SERVICE CO., LTD.**  
12-13F, NCI Tower, A12 Jianguomenwai Avenue, Chaoyang District, Beijing, 100022, China



ISO9001 Certification  
OLYMPUS CORPORATION Micro-Imaging System Division



ISO14001 Certification  
OLYMPUS CORPORATION Ina-Plant

**OLYMPUS CORPORATION obtains ISO9001/ISO14001**



This catalog is printed by environmentally-friendly waterless printing system with soy ink.

www.olympus.com

Printed in Japan M1593E-0606B