

**OLYMPUS**<sup>®</sup>

Your Vision, Our Future

HIGH SENSITIVITY COOLED CCD CAMERA

**DP30BW**

*High sensitivity,*  
*ultra-low noise digital camera,*  
*ideal for live cell imaging*





# High readout speed, high sensitivity and low noise make the DP30BW

## High Frame Rate

### Rapid, high-quality live image display

Fast performance delivers fast results, protecting valuable specimens by minimizing their exposure to excitation light. The DP30BW makes positioning and focusing quick, accurate and reliable; providing a full-frame, high-speed live image display (15 frames/sec. with an image size of 1360x1024 pixels). Easy-to-use operation, combined with superb image quality make this exceptional camera ideal for time-lapse observation and many other demanding imaging applications.

## High Speed

### High-speed image acquisition minimizes cell damage

With its fast 28MHz readout speed\*, the DP30BW can capture movie images (1360x1024 pixels) at 15 frames/sec. Still images are rapidly captured in only 0.3 seconds. The consequent reduction in exposure time minimizes the chances of both cell damage and fluorescence fading, ensuring this camera's suitability for a broad range of fluorescence imaging tasks.

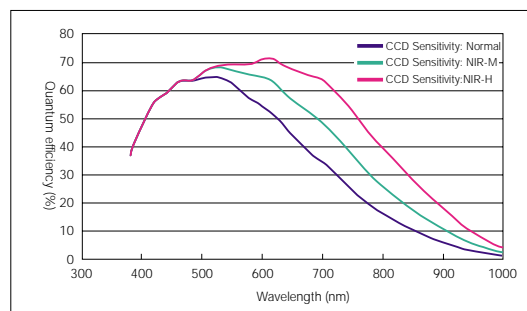
\*For exposure times of 0.1ms - 67ms.

## High Sensitivity

### Clear observation even with weak fluorescence emission

The monochrome CCD coupled with a high-performance amplifier provides very high sensitivity. Optimized imaging conditions with 3 user-selectable sensitivity controls (Normal, NIR-M and NIR-H), adjusting the quantum efficiency from 63% to 70%\*. This ensures optimization over a broad range of wavelengths; from visible to near-infrared light. The NIR-M and NIR-H settings increase sensitivity to light emissions at longer wavelengths, allowing observation of difficult fluorochromes like Cy7 fluorochrome.

\*Value at maximum sensitivity



## Simple Operation

DP-BSW: Easy-to-use, multi-functional image acquisition software





Sample: *C-elegans* Observation method: GFP Image acquisition Conditions: 15 frame/sec. (MPEG mode)

## BW superb for all low-light imaging applications.

### Vibration-free

#### Fanless, Peltier cooling ensures operational stability

Employing a cooling system without a fan, the DP30BW's operation is entirely free from camera vibration or any associated noise. It is extremely suitable for electrophysiology tasks requiring stability such as patch clamping and injecting. In addition, there is no AC adapter or separate control box to clutter up valuable space around the microscope.

### Lower Noise

#### New background subtraction technology

The DP30BW's exceptional low-noise performance is achieved via improved Peltier cooling and photoelectric transfer circuit. Additionally, noise resulting from dark current (a result of long exposures), is eliminated by using a new, background subtraction function, developed by Olympus.

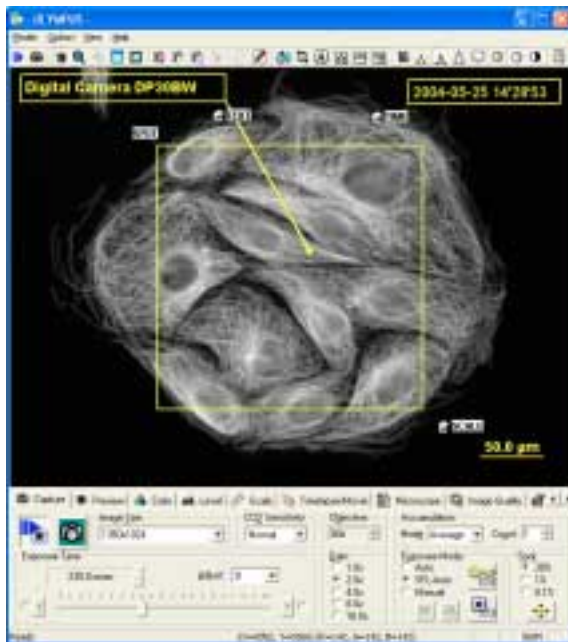
### Trigger IN/OUT

#### Synchronization with external trigger

The DP30BW can be operated via a synchronized trigger from external equipment, or can send "trigger out" signals from the camera.



- Intuitive, easy-to-use GUI (Graphic User Interface). Menu bar items can be customized by the user, with only frequently used functions displayed as menu icons.
- Annotations including arrow, time and scale bar can all be saved with the image.



- The DP30BW can be synchronized to a UNIBLITZ\* shutter or an Olympus IX81 or BX61 microscope shutter. During time-lapse imaging, it is possible to open/close a shutter before/after an exposure.

\*Made by Vincent Associates



- Recorded images can be stored in AVI or MPEG-1 formats, for sequential acquisition of still images or continuous "movie" recording of live images.



## Main Specifications (DP30BW)

Items	Specification
Camera type	Single chip monochrome CCD camera with built-in shutter
Imaging sensor	2/3 inch monochrome CCD, 1.5 million (total) pixels, 1.45 million (effective) pixels, progressive scanning method (Sensor: ICX285AL, Pixel size: 6.45µm x 6.45µm)
Cooling system	Peltier cooling, CCD temperature: 5°C (constant)
Camera mount	C mount
CCD sensitivity	Standard/NIR-M/NIR-H
Gain	x1, x2, x4, x8, x16
A/D	12 bit
Readout speed	28MHz (live display with 1x1, 2x2, 4x4 binning), 14MHz (still image acquisition, live display with 8x8 binning)
Full well capacity	15,000e
Readout noise	8e
Dark current	0.75e/pixel/sec
Quantum efficiency	63% (550nm, Standard CCD sensitivity), 70% (600nm, NIR-H CCD sensitivity)
Dynamic range	1875:1
Exposure time	600sec-0.1msec
Background subtraction	ON/OFF
External trigger	Event trigger input and trigger output (TTL compatible)
Image size (binning)	1360x1024 (1x1), 680x512 (1x1), 680x510 (2x2), 340x250 (4x4), 170x120 (8x8)
Still image acquisition time (from start of shooting to display)	1360x1024: approx. 0.3 sec, 680x510(2x2): approx. 0.2 sec, 340x250(4x4): approx. 0.1 sec, 170x120(8x8): approx. 0.1sec (minimum)
Live image frame rate	1360x1024: 15fps, 680x510 (2x2): 29fps, 340x250 (4x4): 53fps, 170x120 (8x8): 53fps (maximum)
Interface	PCI bus interface, compliant with PCI Rev2.1 and 2.2
Operational conditions	10°C-35°C, 20-80% (non condensing)
Storage conditions	-20°C-60°C, 10-90%

## PC-AT hardware requirements

Items	Specifications
CPU	Intel Pentium 4 2.6GHz or greater with Hyper-Threading
Chip-set	Intel i865, (i875)
RAM	PC2700/PC3200 512MB or more, operate with dual channel
Graphics	VRAM16MB or more 1280x1024 or more, 32-bit color
Case	Full length PCI card compatible
Power supply	250W or more (with CE mark)

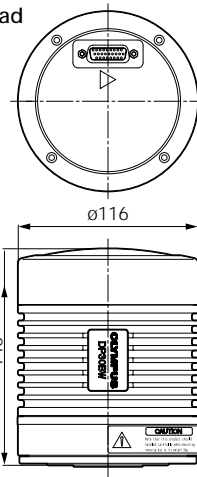
## Main specifications (DP-BSW)

Items	Specifications	
Exposure control	Exposure mode	Auto, SFL auto, Manual
	AE lock	Available
	Exposure adjustment	Range: ±2.0 EV, step: 1/3 EV
	Metering modes	30%, 1%, 0.1% (metering area can be moved freely)
Image integration	Mode	Integral/Average
	Number	64 frames (maximum)
Black balance	Auto (one-push, one-touch), manual	
Time-lapse photography	Recording time: 1 sec. - 24hrs. 59min. 59sec, Number of images: 1000 Movie images can also be saved	
Movie recording	Recording time: 1 sec. - 1hr. 59min. 59sec	
TWAIN driver	Compatible	
Image file format	TIFF(16/8bit), JPEG, BMP, PICT AVI, MPEG-1	
Image orientation	Flip/mirror/180°	
Contrast	Linear, Hi, Mid, Lo	
Level adjustment	Auto, manual	
Overlay display	Scale, text, arrow, date	
Motorized microscope control	Controls IX81/BX61 (Requires additional IX2-BSW or BX2-BSW) • Motorized nosepiece • Motorized mirror unit • Excitation light shutter open/close	
OS	Windows XP Professional Windows 2000 Professional	

## Dimensions

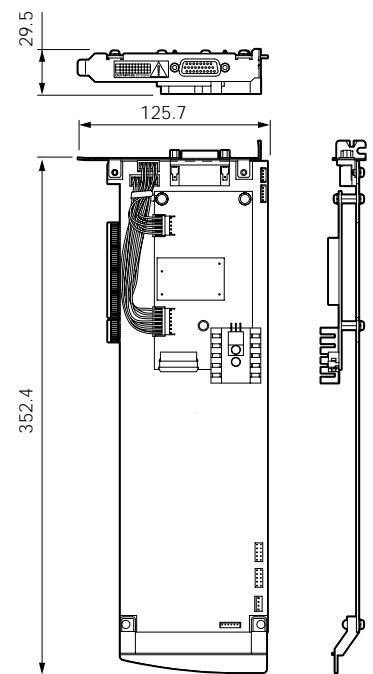
(unit: mm)

### Camera head

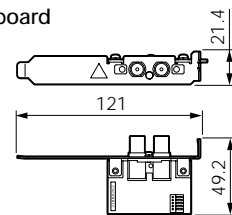


Camera interface cable: approx. 2.5m  
Weight: approx. 2.7kg

### PCI I/F board



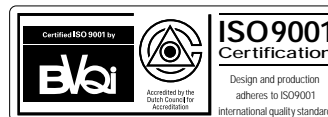
### Trigger IO board



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



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



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