

OLYMPUS

Your Vision, Our Future

*PROFESSIONALISM REQUIRES
INTELLIGENT SOLUTIONS*

OLYMPUS -SYSTEM

Lenses and Accessories



Image taken with Olympus E-1 / Photographer: Håkan Hjort

THE FIRST FULLY DIGITAL

To date digital photography with professional SLR cameras has been a compromise between digital image recording and lenses designed for 35mm film cameras. In the new digital Olympus E-System, based on the innovative FourThirds Standard,



Photographer: Joachim Baldauf



Photographer: Jo van den Berg



Photographer: Stefan Schütz

- The Olympus E-System is the first professional SLR system designed completely from scratch for digital photography.
- The lenses are designed specifically for digital technology, thus allowing the image sensor's potential to be fully exploited. As well as this the lenses are smaller, lighter and brighter, making the camera system as a whole more compact, more stable and easier to use.
- Thanks to a unique information exchange system, it is possible for lenses with extreme designs, such as super wide angle, to give information about the lens characteristics such as vignetting and distortion to the body. Based on this information the camera and the application software can compensate each other precisely. This is a valuable feature to overcome the limitations of optical lens designs.

SLR-SYSTEM

Olympus has combined its outstanding expertise in the fields of digital photography and optical technology and is setting new standards in the world of professional photography.



Photographer: Joachim Baldauf



Photographer: Kanjo Take



Photographer: Jo van den Berg

- The new FourThirds Standard ensures optimum image quality, camera formats and system versatility, and as an open standard offers entirely new opportunities for manufacturers and photographers all over the world.
- The Olympus Global Professional Service is a worldwide organisation offering the professional photographer the very highest standards of reliable and efficient service and support.

THE IDEAL CONDITIONS FOR A PERFECT SYSTEM

Photography is currently going through a paradigm change which is still far from complete, but whose direction is clear: digital photography.

A technology like this only has a future if it has been truly tried and tested in all its aspects and redefined in terms of optimum performance. That is what Olympus has done in designing the Olympus E-System based on the FourThirds Standard. The primary goal was to tailor every detail of this system to the demands of professional photography.

The FourThirds Standard uses lenses which are just as powerful as the lenses previously developed for 35mm film camera systems despite being about half the size. Thus the focal length of a 300mm in the FourThirds Standard gives the same angle of view as a 600mm lens for a 35mm film camera.

The benefit: superb image quality but less weight to carry. All lenses feature a near telecentric design that ensures that the light hits the photodiodes at right angles, thus avoiding the problem of blurring at the edges of the image, or corner shading, which often occurs when using lenses originally designed for 35mm film cameras. Combined with the high resolution of the Olympus ZUIKO DIGITAL lenses, this lens design exploits the full potential of the digital camera image sensors. The result is clear photos with strong colours and sharp contrasts right to the edges of the image.

Olympus offers a wide range of interchangeable lenses with apertures from f2.0 upwards, that allow to achieve superb photos even in poor lighting conditions.

Many ZUIKO DIGITAL lenses contain ED glass elements which guide the light directly onto the image sensor, guaranteeing clear pictures with vivid colours and avoiding chromatic aberration.



A new standard focal length

The FourThirds Standard has led to a new standard focal length of approximately 25mm, which is half the focal length of a standard lens (50mm) on a 35mm format camera. This is because the format (diagonal measurement) of the FourThirds image sensor is approximately half the size of the 35mm camera format, and as in all cameras the sensor format diagonal and standard focal length are directly related, the standard focal length of a FourThirds system lens is half that of the 35mm standard.

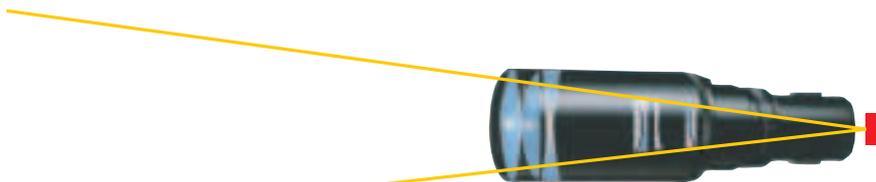
On a FourThirds Format camera, a lens with the standard focal length of 25mm will give an angle of view approximating to the focus area of a human eye (47°). Any lens with a focal length less than 25mm therefore becomes a wide angle and any lens more than 25mm is a telephoto lens.

When comparing the focal lengths of lenses used on the Olympus E-System to those used for 35mm photography, doubling the focal length of the FourThirds lens will give the 35mm equivalent angle of view. It is important to know that this is not a 2x “crop factor” as quoted by other manufacturers, the lenses on the Olympus E-System are designed for this size format and have a much higher resolution than

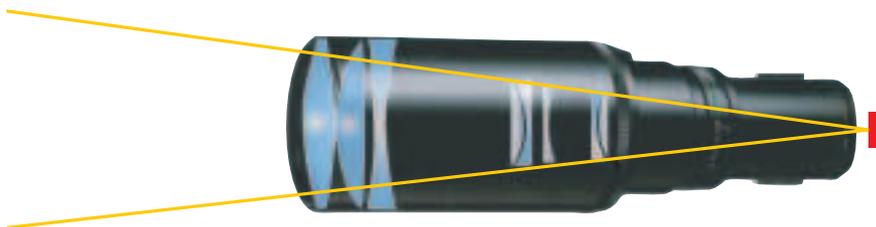
lenses designed generally for 35mm film cameras.

When developing the FourThirds Standard the size of the image sensor and the

standard focal length were deliberately chosen to ensure an optimum combination of image quality, ease of operation, versatility, upgradeability and economy.



FourThirds Format (300mm)



APS Format (400mm)



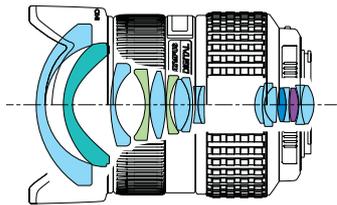
35mm Film Format (600mm)





ZUIKO DIGITAL ED 7 – 14mm***f 4.0**

This unusually compact zoom lens covers the range from medium wide angle to a maximum of 114 degrees. Its complex lens design ensures excellent image quality even at extreme picture angles. Available in Spring 2005.

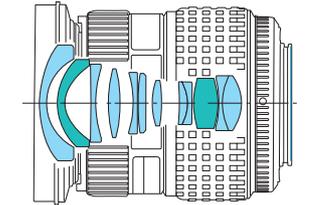


- 2x zoom lens
- 2 Super ED and 1 ED glass element, 1 aspherical lens and 1 ED glass aspherical lens element
- Multi-coated to protect against ghosting and glare
- Minimum working distance 0.10m

* 35mm equivalent focal length 14 – 28mm

ZUIKO DIGITAL 11 – 22mm***f 2.8 – 3.5**

This bright, 2x wide angle zoom lens has a very low starting focal length of 11mm, giving it wide angle photography options offered by very few lenses used in digital SLR systems.

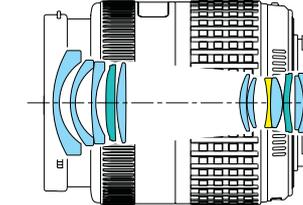


- 2x zoom lens
- 2 aspherical elements which provide optimum correction of distortion, spherical aberration and coma aberration
- With floating mechanism
- Closest focusing distance 0.28m

* 35mm equivalent focal length 22 – 44mm

ZUIKO DIGITAL 14 – 45mm***f 3.5 – 5.6**

A small, light and economically-priced zoom lens with a range of use from medium wide angle to classical telephoto portrait. Specially coated to reduce ghost flare.

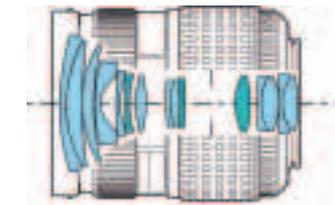


- 3.2x zoom lens
- 2 aspherical lens elements
- Floating mechanism
- Closest focusing distance 0.38m

* 35mm equivalent focal length 28 – 90mm

ZUIKO DIGITAL 14 – 54mm***f 2.8 – 3.5**

This is a bright all-round zoom lens offering both wide angle and short telephoto, making it the ideal basic lens.

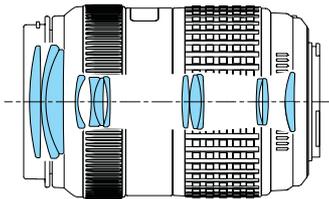


- 3.9x zoom lens
- 3 aspherical lens elements
- Inner focus with floating mechanism
- Closest focusing distance 0.22m

* 35mm equivalent focal length 28mm – 108mm

ZUIKO DIGITAL 40 – 150mm*
f 3.5 – 4.5

A compact, light and economically priced telephoto lens. Its powerful zoom make it the ideal supplement to the 14 – 45mm ZUIKO DIGITAL lens.

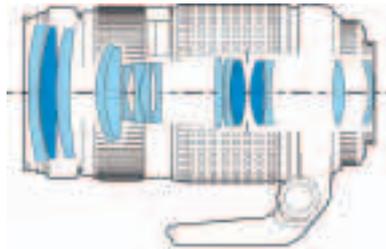


- 3.8x zoom lens
- Multi-coated
- Closest focusing distance 1.5m

* 35mm equivalent focal length 80 – 300mm

ZUIKO DIGITAL ED 50 – 200 mm*
f 2.8 – 3.5

This top-class professional telephoto zoom lens is one of the lightest and most compact of its kind and also has excellent light-gathering power. It consists of 16 elements including three ED elements.



- 4x zoom lens
- 3 ED lens elements
- Inner focus
- Closest focusing distance 1.2m

* 35mm equivalent focal length 100mm – 400mm

Extension Tube EX-25

This increases the distance from the lens to the sensor by 25mm, thus permitting a shorter closest focusing distance than is normally possible with any given lens. With the ZUIKO DIGITAL ED 50mm f 2.0 macro lens this extension tube gives a magnification of 1:1, giving the equivalent area coverage as a 2:1 macro lens on a 35mm film camera.



Teleconverter EC-14

Placed between body and lens, this teleconverter increases the focal length of the lens by a factor of 1.4. Thus the 300mm lens becomes a 420mm lens, or a 35mm equivalent focal length of 840mm. With the loss of one f-number, the 420mm focal length still delivers outstanding brightness of f 4.0.

ZUIKO DIGITAL ED 50mm*
f 2.0 Macro

This is a special macro photography lens designed for use with the Macro flash system but also equally good in normal use. Its 2.0 maximum aperture gives it great light-gathering power. The lens includes an ED element for sharp, brilliant colour images.

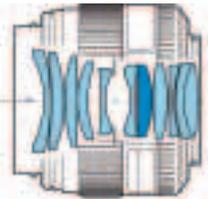
ZUIKO DIGITAL ED 150mm*
f 2.0

This lens combines telephoto power with plenty of light-gathering power, making it especially good for nature and sports photography. It exploits the advantages of the FourThirds Standards to make possible telephotography with wider apertures, something which could not be achieved at an economical price in a 35mm system.



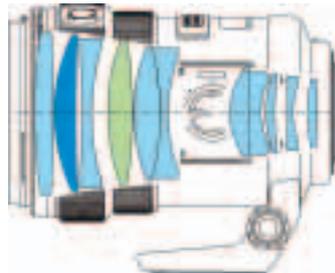
ZUIKO DIGITAL ED 300mm*
f 2.8

This 300mm lens is ideal for sports and nature photography. It is an extremely bright but compact lens, making it easy to handle. Even so, it has the equivalent performance of a 600mm f 2.8 lens on a 35mm film camera, despite being approximately half the size. The three high-performance ED elements deliver superb sharpness.



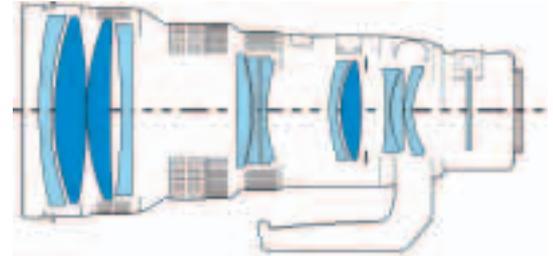
- 1 ED lens element
- Focus with floating mechanism
- Maximum Image Magnification 1/1.9 (0.52x)
- Closest focusing distance 0.24 m

* 35mm equivalent focal length 100mm



- 1 ED and 1 super ED lens element
- Inner focus with floating mechanism
- Focus range limiter for faster focusing
- Closest focusing distance 1.4m
- 9 blades

* 35mm equivalent focal length 300mm



- 3 ED lens elements
- Inner focus with floating mechanism
- Focus range limiter for faster focusing
- Drop-in filter system
- Closest focusing distance 2.4m
- 9 blades

* 35mm equivalent focal length 600mm

The 300mm lens comes with a range of accessories including filter equipment.

The DFH-43 filter holder will carry the following filters:



DFH-43 filter holder



ND8-43 grey filter



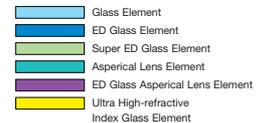
ND4-43 grey filter



SCF-43 clear filter



The DPF-43 filter holder carries the polarisation filter





Electronic flash FL-50

To ensure maximum versatility, a wide range of flash units and accessories specially designed for use with digital cameras are available for the Olympus E-system.

The powerful electronic FL-50 flash unit has been specially developed for use with digital cameras. A variety of adjustment options, high-speed synchronisation and a wide range of accessories make the FL-50 flash unit the ideal tool for every Olympus E-1 user.

It offers GN (Guide Number) 50 at a focal length of 42mm (equivalent to 85mm on a 35mm film camera; ISO 100), and GN 28 at a focal length of 12mm (equivalent to 24mm on a 35mm film camera; ISO 100).

Features:

- Option of TTL-Auto, auto and manual modes.
 - Bounce and swivel head.
 - As well as supporting the camera's normal synchronisation speed of 1/180s, the FL-50 flash unit features the special Olympus Super FP Flash Mode thus giving the wider creative photographic possibilities. The Super FP Flash Mode activates the flash from the instant the shutter opens until it closes again, allowing the flash to be used even at the highest shutter speeds. Thus the Olympus E-1 permits flash synchronisation at all shutter speeds right down to 1/4000s.
 - The flash reflector adjusts automatically in several steps during lens zooming to match the flash coverage to the lens angle of view.
- The flash unit has an AF assist illuminator that extends the range of the camera's focus assist illuminator from 7 to 10 metres.
 - With the Olympus E-1, the photographer can adjust the flash intensity in 1/3 EV steps, and it also offers features such as red-eye reduction, slow synchronisation and second curtain synchronisation.
 - There are several power supply options for the FL-50 flash unit:
AA batteries, the LB-01 lithium battery, the FP-1 flash power grip for extra performance and the SHV-1 high voltage pack with an additional powerful battery.





Electronic flash FL-36

The FL-36 electronic flash unit largely has the same technical functions as the FL-50 and has also been developed for use in digital photography, though with an eye to offering especially good value for money.

It offers GN 36 at a focal length of 42mm (equivalent to 85mm on a 35mm camera; ISO 100), and GN 20 at a focal length of 12mm (equivalent to 24mm on a 35mm camera; ISO 100).

Features:

- Option of TTL-Auto, auto and manual modes.
- Compact design and light weight.
- New super-energy-saving circuitry.

- You can work with a high GN even when using a wide-angle lens.
- The head swivels not just vertically but also horizontally.
- The FL-36 is equipped with the unique-to-Olympus super FP mode.
- Flash coverage is automatically adjusted to the image area in several steps during zooming.

- With the Olympus digital SLR, you can adjust the flash intensity in 1/3 EV steps, and it also offers features such as red-eye reduction, slow synchronisation and second curtain synchronisation.
- Power supply: two AA batteries or one LB-01 lithium battery (this is sufficient thanks to the newly-developed IC).

Perfect Light for Professional Requirements

The professional Macro Flash System opens up even more potential applications and design possibilities for Olympus E-1 photographers. Whatever kind of light you need, whether for still-life photography, advertising or macro exposures, this flash accessory will help you find exactly the effect you're looking for. The Macro Flash System includes a ring flash unit, a twin flash unit, an adapter ring and a flash controller. It is designed for use with the Olympus E-System, the professional digital SLR system based on the FourThirds System Standard. The ring flash and twin flash are each available separately in sets comprising the adapter ring, flash control unit, all connection cables and a sturdy bag providing plenty of space for every individual component of the complete system.

Olympus Macro Flash System components:

- FS-RF11 Ring Flash Unit
- FS-TF22 Twin Flash Unit
- FS-FC1 Macro Controller
- FS-RF1 Flash Adapter Ring
- FS-STF22 plus FS-FC1Twin Flash Set
- FS-SRF11 plus FS-FC1 Ring Flash Set

Twin Flash

This flash set combines two separate flash heads which can be positioned in any direction or angle desired in conjunction with the bundled shoe ring. The flash heads can be fired either together or individually. The flash output balance between the heads can be adjusted up to a ratio of 8:1 in favour of either head, and the 19 adjustment levels between these two extremes permit a high degree of control for perfect exposure, while also delivering maximum flexibility and versatility from uniform lighting for document photography to deliberate shadow effects. For lens compatibility see Specifications.



FS-FC1 Macro Flash Unit

The FS-FC1 Macro Flash Controller facilitates macro photography using the TTL Automatic Flash. The Macro Flash Controller is simple to mount on the Olympus E-1 flash shoe to control either the FS-RF11 Ring Flash or the FS-TF22 Twin Flash. For optimum flash performance we recommend the SHV-1 high voltage set.

Ring Flash

The ring flash head provides uniform, shadow-free illumination for macro photography, providing outstanding results in dermatology and dentistry and any-where where something needs to be put on record. However, it is also ideal for special effects in professional, fashion or portrait photography. For lens compatibility see Specifications.



Flash power grip for the FL-50 (including hot shoe cable)

This flash power grip FP-1, designed for the FL-50 flash unit, can be used with the flash unit's integrated power supply to enable more shots to be taken and to decrease the flash recycle time.



Flash high voltage set

The Flash High Voltage Set SHV-1 contains a high voltage pack (HV-1) with charging function, a nickel-hydrate battery pack (BN-1) and an AC adapter (AC-2) for charging the battery.



Ni-MH battery pack

The nickel-hydrate battery BN-1 for use with the FL-50 electronic flash unit. It provides power for over 250 flashes and a flash recycle time of less than 1.3 seconds when used with the FL-50.



Remote grip cable

The remote grip cable RG-1 connects the Olympus E-1 to the FP-1 flash power grip, allowing shutter release using the button provided on the FP-1.



Flash cable

The flash cable FL-CB02 connects the Olympus E-1 (from the hot shoe) to the FP-1 flash power grip.



Flash cable (hot shoe to hot shoe)

The flash cable FL-CB05 for use with FL-50 when not attached directly to the camera's hot shoe.



Flash adapter ring

The flash adapter ring FR-1 allows the ring or twin flash to be attached to the ZUIKO DIGITAL 50mm f 2.0 macro lens.



Apart from lenses and flash system components, a wide variety of accessories are available for use with the Olympus E-System, including batteries, chargers, focusing screens and software.

Lithium-ion battery pack BLM-1

– 1500 mAh rechargeable lithium-ion battery

(Included with the Olympus E-1)



Lithium-ion battery charger BCM-1

– 100-240V AC adapter can be used internationally.

(Included with the Olympus E-1)



Power battery set SHLD-2

- High-capacity BLL-1 lithium-ion battery
- BCL-1 lithium-ion battery charger
- HLD-2 power battery holder



Power battery holder HLD-2

- For the high-capacity BLL-1 lithium-ion battery
- Features shutter button, main and subdials, AEL button and AF frame selector for easy photography when rotating the camera 90° for portrait shots.



Battery pack BLL-1

- High-capacity 3400 mAh lithium-ion battery
- For the HLD-2 power battery holder



Battery charger BCL-1

- Specially suitable for the BLL-1 lithium-ion battery
- Two-hour recharging time for the BLL-1 lithium-ion battery
- 100-240V AC adapter can be used internationally.



AC adapter AC-1

- 9V AC-Adapter specially designed for the Olympus E-1 body.
- Can be used internationally (100-240V)



VA-1 angle finder

The ideal accessory for shots from extreme camera positions. Two magnifications make focusing and picture composition easier.

- Magnifications of 1.0x and 2.0x
- Swivels 360° with 90° scanning
- In-built dioptre compensation from -5.0 to +3.0
- Comes with eyecups
- Compatible with Olympus systems E-1 and E-300



Focussing screens FS-1/2

User changeable focussing screens, the FS-1 for general photography (supplied with the Olympus E-1) and the FS-2, which has a grid pattern for precision framing.



Eyecups EP-1/2

While the Olympus E-1 is supplied with the eyecup EP-1, this can be easily replaced with the deeper eyecup EP-2 which gives better protection when using the camera in strong backlight conditions.



EP-2

EP-1

Grip strap GS-2

For use with the HLD-2 power battery holder.



Remote control RM-1

The RM-1 remote control permits cable-free camera shutter release via an infrared signal.



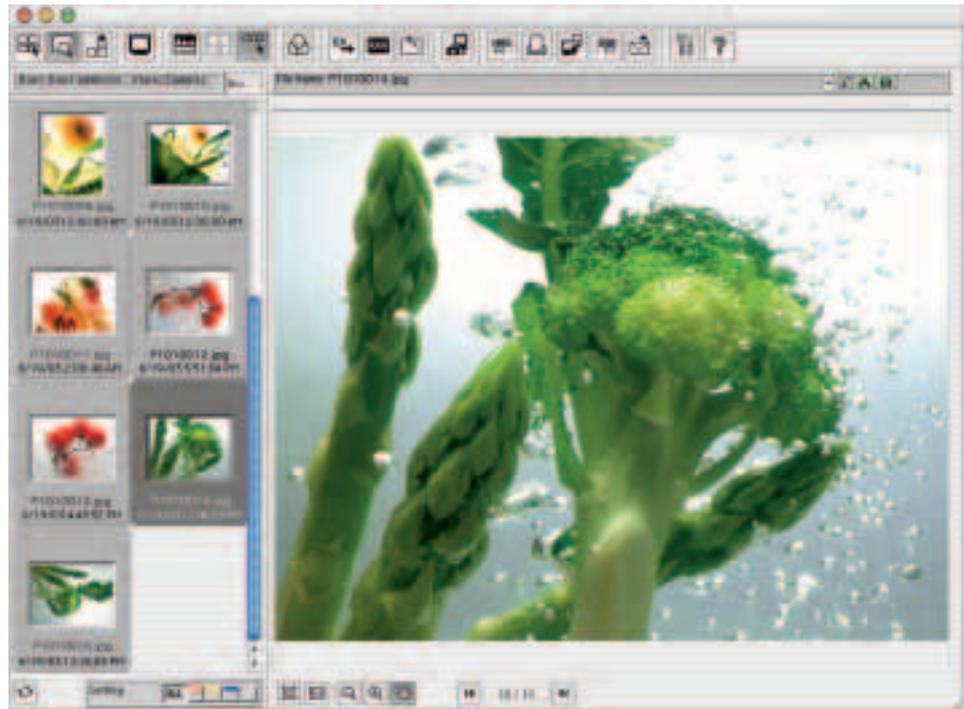
Remote control cable RM-CB1



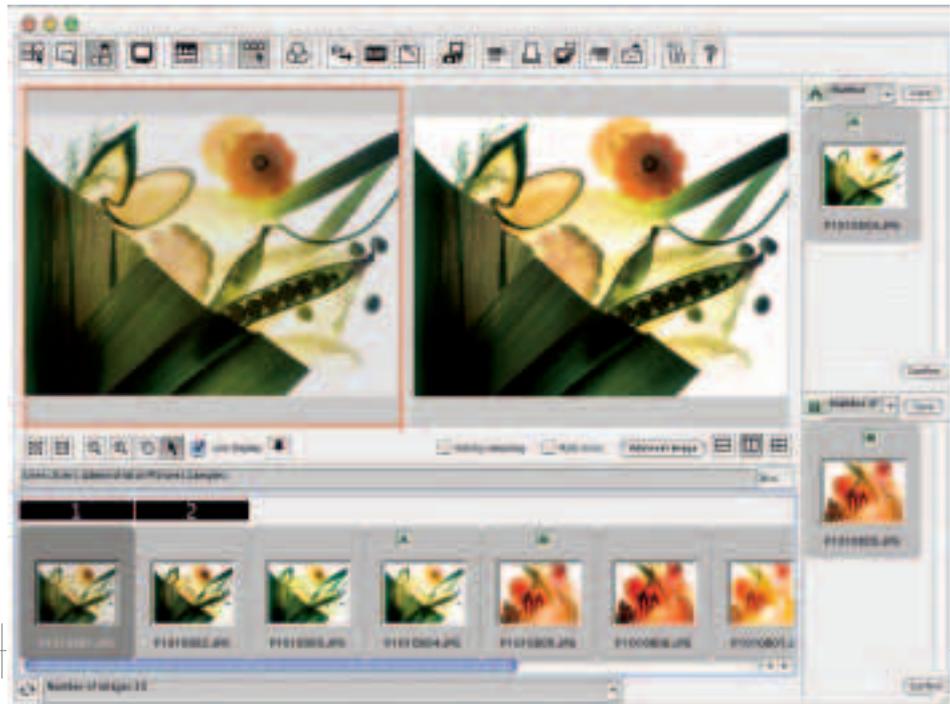
Olympus Viewer Software

Olympus Viewer Software for downloading, browsing, evaluating, organising and printing out the images. The easy-to-use graphic interface and its many features ensure efficient workflow at all times. Highlights include the virtual light box, a tool which functions almost like a real light box for checking film, allowing images to be viewed and selected on PC before grouping and editing them. With the RAW file processing function included in this software the user can select the desired RAW files quickly and easily and can then convert them into TIFF, JPEG or other formats as desired.

This software comes as standard with the Olympus E-1.



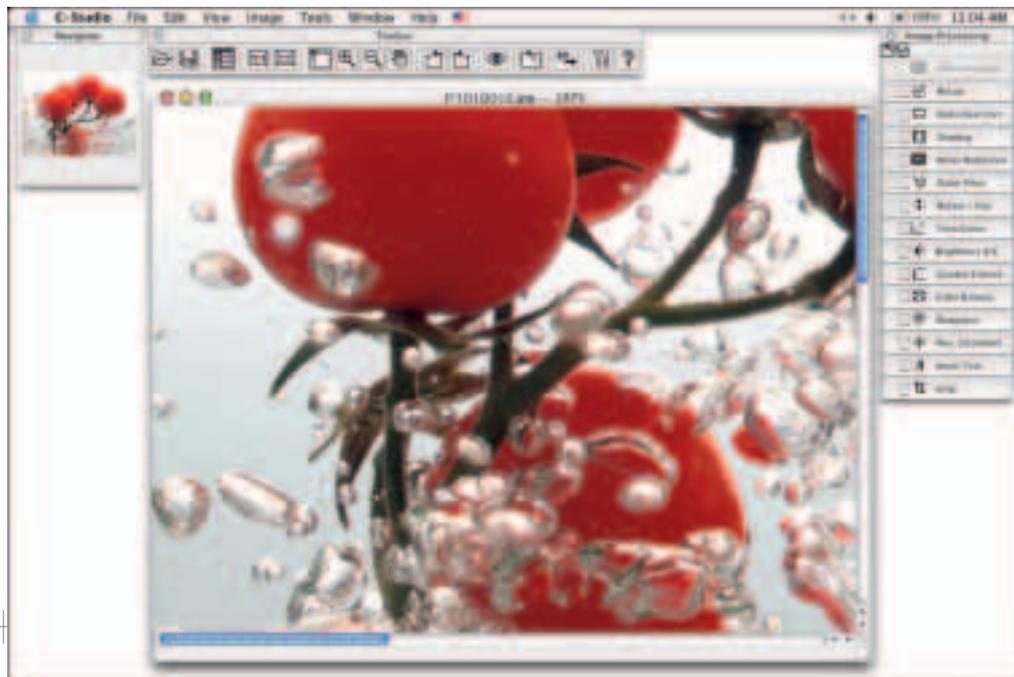
Olympus Viewer Software: Viewing enlarged images



Olympus Viewer Software: Lightbox function comparing images (up to 4 images possible)



Olympus Studio Software: Camera Control from the computer



Olympus Studio Software: Image editing tool

Olympus Studio Software

The Olympus Studio 1.0 Software is the perfect answer to the demands of professional photographers. It extends the Olympus Viewer Software and provides various functions for a fast and efficient workflow.

Camera control from the computer

If the camera is connected to the computer (PC or Mac) the recorded images can be stored directly onto the hard drive. The photographer can choose to control the camera either directly, or remotely from the computer.

Image editing with batch processing

The image editing mode includes many key editing functions like tone curve and gamma correction. Batch processing allows you to quickly and easily enhance the quality of all shots taken in a session. Editing operations such as distortion correction and noise reduction can be automatically corrected simultaneously.

High-speed RAW file processing

Selecting the high-speed RAW development function permits extremely rapid saving of RAW files in TIFF or JPEG format.

High-function RAW file processing

Selecting the high-function RAW development function permits even higher quality while saving RAW files in TIFF or JPEG.

Specifications

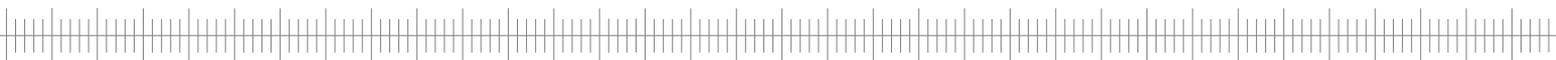
Model	ZUIKO DIGITAL ED 7 – 14mm f 4.0	ZUIKO DIGITAL 11 – 22mm f 2.8 – 3.5	ZUIKO DIGITAL 14 – 45mm f 3.5 – 5.6
Focal length	7mm – 14mm Zoom	11mm – 22mm Zoom	14mm – 45mm Zoom
35mm Equivalent Focal Length	14mm – 28mm	22mm – 44mm	28mm – 90mm
Construction			
Lens	18 Elements in 12 Groups, including 2 Glass Aspherical Lens Elements (1 is ED Glass), 2 Super ED Glass Elements and 1 ED Glass Element	12 Elements in 10 Groups, including 2 Aspherical Lens Elements	12 Elements in 10 Groups, including 2 Aspherical Lens Elements and 1 Ultra High-refractive Index Glass Element
Mechanism	Inner focus with floating mechanism	Floating mechanism in the front lens group	Front focus with floating mechanism
Angle of View	75 to 114 Degrees	89 to 53 Degrees	75 to 27 Degrees
Closest Focusing Distance	T.B.D.	0.28m	0.38m
Maximum Image Magnification	T.B.D.	0.13x	0.16x
35mm Equivalent Magnification	T.B.D.	0.26x	0.32x
Aperture			
Number of Blades	T.B.D.	7	7
Maximum Aperture	f 4.0	f 2.8 Wide – f 3.5 Telephoto	f 3.5 Wide – f 5.6 Telephoto
Minimum Aperture	f 22	f 22	f 22
Filter size	Not available, filters cannot be screwed on	72mm	58mm
Size / Weight			
Dimension	T.B.D.	Diameter 75 x 92.5mm	Diameter 71 x 86.5mm
Weight	T.B.D.	485g	285g
Compatibility			
Tele Converter EC-14	Yes	Yes	Yes (Manual Focus only)
Extension Tube EX-25	T.B.D.	No	Extended Maximum Image Magnification: 1.14x
Lens Hood	Built-in	LH-75	LH-61
Lens Cap	T.B.D.	LC-72 (72mm)	LC-58B (58mm)
Lens Case	T.B.D.	LSC-0918	LSC-0816
Box Contents	T.B.D.	Lens Hood (LH-75), Lens Case (LSC-0918), Lens-Cap (LC-72), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card	Lens Hood (LH-61), Lens Cap (LC-58B), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card

Model	ZUIKO DIGITAL 14 – 54 mm f 2.8 – 3.5	ZUIKO DIGITAL 40 – 150 mm f 3.5 – 4.5	ZUIKO DIGITAL ED 50 – 200 mm f 2.8 – 3.5
Focal length	14mm – 54mm Zoom	40mm – 150mm Zoom	50mm – 200mm Zoom
35mm Equivalent Focal Length	28mm – 108mm	80mm – 300mm	100mm – 400mm
Construction			
Lens	15 Elements in 11 Groups, including 3 Aspherical Lens Elements	13 Elements in 10 Groups	16 Elements in 15 Groups, including 3 ED Glass Elements
Mechanism	Inner focus with floating mechanism	Front focus	Inner focus
Angle of View	75 to 23 Degrees	30 to 8.2 Degrees	24 to 6 Degrees
Closest Focusing Distance	0.22m	1.5m	1.2m
Maximum Image Magnification	0.26x	0.12x	0.21x
35mm Equivalent Magnification	0.52x	0.24x	0.42x
Aperture			
Number of Blades	7	7	9
Maximum Aperture	f 2.8 Wide – f 3.5 Telephoto	f 3.5 Wide – f 4.5 Telephoto	f 2.8 Wide – f 3.5 Telephoto
Minimum Aperture	f 22	f 22	f 22
Filter size	67mm	58mm	67mm
Size / Weight			
Dimension	Diameter 73.5 x 88.5mm	Diameter 77 x 107mm	Diameter 87 x 157mm
Weight	435g	425g	1070g with Tripod Adapter
Compatibility			
Tele Converter EC-14	Yes	Yes (Manual Focus only)	Yes
Extension Tube EX-25	Extended Maximum Image Magnification: 0,65x	Extended Maximum Image Magnification: 0,62x	Extended Maximum Image Magnification: 0,49x
Lens Hood	LH-70	LH-61B	LH-70B
Lens Cap	LC-67 (67mm)	LC-58B (58mm)	LC-67 (67mm)
Lens Case	LSC-0816	LSC-0918	LSC-1220
Box Contents	Lens Hood (LH-70), Lens Case (LSC-0816), Lens Cap (LC-67), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card	Lens Hood (LH-61B), Lens Cap (LC-58B), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card	Lens Hood (LH-70B), Lens Case (LSC-1220), Tripod Adapter, Lens Cap (LC-67), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card

Model	ZUIKO DIGITAL ED 50 mm f 2.0 Macro	ZUIKO DIGITAL ED 150 mm f 2.0	ZUIKO DIGITAL ED 300 mm f 2.8
Focal length	50mm	150mm	300mm
35mm Equivalent Focal Length	100mm	300mm	600mm
Construction			
Lens	11 Elements in 10 Groups, including 1 ED Glass Element	11 Elements in 9 Groups, including 1 ED and 1 Super ED Glass Element	13 Elements in 11 Groups, including 3 ED Glass Element and 1 Filter Holder
Mechanism	Floating focusing mechanism	Inner focus with floating mechanism	Inner focus with floating mechanism
Angle of View	24 Degrees	8.2 Degrees	4.2 Degrees
Closest Focusing Distance	0.24m	1.4m	2.4m
Maximum Image Magnification	0.52x	0.13x	0.15x
35mm Equivalent Magnification	1.04x	0.26x	0.3x
Aperture			
Number of Blades	7	9	9
Maximum Aperture	f 2.0	f 2.0	f 2.8
Minimum Aperture	f 22	f 22	f 22
Filter size	52mm	82mm	Exklusive Drop-In-Filter 43mm (supplied)
Size / Weight			
Dimension	Diameter 71 x 61.5mm	Diameter 100 x 150mm	Diameter 127 x 285mm
Weight	300g	1610g (with Tripod Adapter)	3290g with Tripod Adapter
Compatibility			
Tele Converter EC-14	Yes, maximum recommended aperture: f 4.0	Yes, maximum recommended aperture: f 4.0	Yes
Extension Tube EX-25	Extended Maximum Image Magnification: 0.98x	Extended Maximum Image Magnification: 0.31x;	Extended Maximum Image Magnification: 0.25x
Lens Hood	LH-55	LH-89	LH-120
Lens Cap	LC-52 (52mm)	LC-82 (82mm)	LC-140 (140mm)
Lens Case	LSC-0814	LSC-1220	LSC-1738
Box Contents	Lens Hood (LH-55), Lens Case (LSC-0814), Lens Cap (LC-52), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card	Lens Hood (LH-89), Tripod Adapter, Lens Case (LSC-1220), Lens Cap (LC-82), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card	Lens Hood (LH-120), Tripod Adapter, Drop In Folder Set (Filter Folder DFH-43, ND Filter ND4-43, ND Filter ND8-43, Clear Filter SCF-43, PL Filter DPF-43), Lens Case (LSC-1738), Lens Shoulder Strap (LSS-1), Lens Cap (LC-140), Lens Rear Cap (LR-1), Instruction Manual, Warranty Card

Model	Tele Converter EC-14
Magnification	1.4x
Lens Construction	6 Elements in 5 Groups
Size / Weight	
Dimensions	Diameter 68 x 22mm
Weight	170g
Lens Case	LSC-0710
Box Contents	Lens Case (LSC-0710), Body Cap (BC-1), Lens Rear Cap (LR-1), Manual, Warranty Card

Model	Extension Tube EX-25
Extended Length	25mm
Size / Weight	
Dimensions	Diameter 68 x 25mm
Weight	170g
Lens Case	LSC-0710
Box Contents	Lens Case (LSC-0710), Body Cap (BC-1), Lens Rear Cap (LR-1), Manual, Warranty Card



Model	Electronic Flash FL-36	Electronic Flash FL-50
Guide Number	Automatic switching from 36 at 42mm to 20 at 12mm 14 at 10mm to 12 at 8mm with the wide panel (built-in)	Automatic switching from 50 at 42mm to 28 at 12mm
Firing Angle	Automatic switching At 12mm: Up-Down 61 Degrees, Left-Right 78 Degrees At 42mm: Up-Down 21 Degrees, Left-Right 28 Degrees When the Wide Panel is used for 8mm	Automatic switching At 12mm: Up-Down 61 Degrees, Left-Right 78 Degrees At 42mm: Up-Down 21 Degrees, Left-Right 28 Degrees When the Wide Panel is used for 8mm
Flash Modes	TTL AUTO, AUTO, MANUAL, FP TTL AUTO, FP MANUAL	TTL AUTO, AUTO, MANUAL, FP TTL AUTO, FP MANUAL
Bounce Angles	Up to 90 Degrees Down 1.5 Degrees Left 0 to 90 Degrees Right 0 to 150 Degrees	Up to 90 Degrees Down 7 Degrees Left 0 to 90 Degrees Right 0 to 180 Degrees
Power Supply	AA (R6) Alkaline batteries x 2 AA (R6) Lithium batteries x 2 AA (R6) Ni-Mn batteries x 2 3V Lithium batterie pack (LB-01) x 1 AA (R6) Ni-Cd batteries (1000 mAh) x 2 AA (R6) Ni-MH batteries (1900 mAh) x 2 AA (R6) Oxyride batteries x 2	AA (R6) Alkaline batteries x 4 AA (R6) Lithium batteries x 4 AA (R6) Ni-Mn batteries x 4 3V Lithium batterie pack (LB-01) x 2 AA (R6) Ni-Cd batteries (1000 mAh) x 4 AA (R6) Ni-MH batteries (1900 mAh) x 4
Dimensions	65mm W x 105mm H x 95mm D (protuberances not included)	78mm W x 141mm H x 107mm D (protuberances not included)
Weight	270g (without batteries)	375g (without batteries)
Box Contents	Soft Case, Instruction Manual, Warranty Card	Soft Case, Instruction Manual, Warranty Card

Model	Twin Flash FS-TF22
Controller	Macro Flash Controller FS-FC1
Characteristic of emission (with Macro Flash Controller FC-1)	
Guide Number (ISO100)	One Flash (GN 16), Two Flashes (GN 22)
Flash Mode	TTL AUTO (GN 0.7-16 control with 1/8EV step) Manual (GN 0.7-16 control with 1/3EV step)
Ratio between their light intensities	You can adjust the ratio between their light intensities with 1/3EV step; You can fire only one Flash; 1:8 - 1:1 - 8:1 Left:Right
Firing angle	Up-Down 50 Degrees, Left-Right 55 Degrees (Single Flash)
Mounting	Using Shoe Ring FS-SR1 (including), 67 or 72mm screwing to the filter mount thread
Compatible available ZUIKO DIGITAL Lenses	ED 50mm f 2.0 Macro (using optional Flash Adapter Ring FS-FR1), 11 – 22mm f 2.8 – 3.5, 14 – 54mm f 2.8 – 3.5, ED 50 – 200mm f 2.8 – 3.5, 14 – 45mm f 3.5 – 5.6 and 40 – 150mm f 3.5 – 4.5 with adapter ring 58mm to 67mm/72mm
Illuminator	Built-in four Lamps
Others	Including Diffusor
Size / Weight	FS-TF22 (single Flash): 73 x 50 x 39mm / 105g
Size / Weight / Corde Length	FS-SR1: 146.5 x 100 x 22.5mm / 95g / about 190mm

Model	Ring Flash FS-RF11
Controller	Macro Flash Controller FS-FC1
Characteristic of emission (with Macro Flash Controller FC-1)	
Guide Number (ISO100)	GN 11
Flash Mode	TTL AUTO (GN 0.7-11 control with 1/8EV step) Manual (GN 0.7-11 control with 1/3EV step)
Firing Angle	Up-Down, Left-Right 85 Degrees
Mounting	Bayonet
Compatible available ZUIKO DIGITAL lenses	ED 50mm f 2.0 Macro (using optional Flash Adapter Ring FS-FR-1), 14 – 54mm f2.8 – 3.5, ED 50 – 200mm f 2.8 – 3.5
Illuminator	Built-in four Lamps
Size / Weight / Corde Length	120 x 135 x 24mm / 145g / about 190mm

Model	Macro Flash Controller FS-FC1
Compatible batteries	AA non rechargeable type: LR6 type, FR6 type, ZR6 type; AA rechargeable: Ni-cd, NiMh batteries x 4; Lithium battery packs (CR-V3 x 2), High Voltage Pack HV-1
Size / Weight	78 x 141 x 119mm / 320g (without battery)

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

