

INON UCL-90 LD

Underwater Close-up Lens

User Manual

Safety Precautions

- Before using your lens, please ensure that you have read and understood the safety precautions described below and user manuals. Please retain user manuals handy for easy reference.
- The safety precautions are intended to instruct you in the safe and correct operation of the strobe to prevent injuries or damage to yourself, other persons and equipment.



WARNING

Failure to observe the precautions described below may lead to possibility of serious injury or death.

Never attempt to see the sun or strong light source through the lens or camera to avoid irreparable injury to the eyes, or temporary visual impairment which may affect your performance requiring safety aspects.

Do not leave the lens in a place subject to direct sunlight to prevent fire which may be caused by the lens collecting sunlight

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INON UCL-90 LD Underwater Close-up Lens

Thank you for purchasing INON product.

INON UCL-90 LD is a wet lens designed for underwater(*1) use to easily acquire ultra-high magnification image by simply attaching on housing port of compatible digital camera via INON optional adapter. Optional INON 28LD Mount Base/LD Lens Adapter Base is required to use the UCL-90 LD. The UCL-90 LD is not compatible with AD Mount Base/28AD Mount Base/28AD Port/M67 Mount Base.

Main Features

- The UCL-90 LD, underwater close-up lens is designed to deliver high magnification yet superior image quality best suited to full frame SLR macro lenses of large image circle, focal length 60mm - 100mm with comfortable long working distance enabling easy lighting but less optical aberrations.
- Maximum magnification of the UCL-90 when using for a 100mm range macro lens for full frame SLR is 2.23x (area ratio: 4.98x) at the minimum focusing distance. (*4)
- The optics is constructed of 3 elements in 2 groups. All elements are made from high refractive index glass lens to minimize physical size of the lens barrel.
- Yet providing powerful 90mm underwater focal length (equivalent to +11 diopter), the UCL-90 design and construction minimize its optical aberrations to deliver high quality image. The construction includes achromat lens to suppress chromatic aberration and anti-reflection coating on all surfaces to elicit combined master lens performance.
- **INON 28LD Mount** compatible to have benefit both of bayonet and lockable system giving you greater flexibility of handling the lens underwater as well as secure lens installation.
- Optional「Lens Adapter Ring for UCL-67/90」 is available to attach on the M65 screw thread of the UCL-90 allowing to stack INON M67 series, 「UCL-165M67」/「UCL-330」 on the front side of the UCL-90 to support even higher magnification for super macro imaging.

Compatible products:

- INON「28LD Mount Base」 series (*2)(*3)
- INON「LD Lens Adapter Base」series (*2)(*3)

(*1) This product is designed for underwater use only. Using on land will not magnify a subject and distortion, vignetting etc. will be observed.

(*2) Compact digital camera with maximum optical zoom 5x or less.

(*3) Only usable when the focal length is set between 60mm and 100mm range (35mm film equivalent). Beyond this range, there will be vignetting at the wide side and deteriorated image quality at the telephoto side.

(*4) When using for AF-S VR Micro-Nikkor 105mm f/2.8G IF-ED

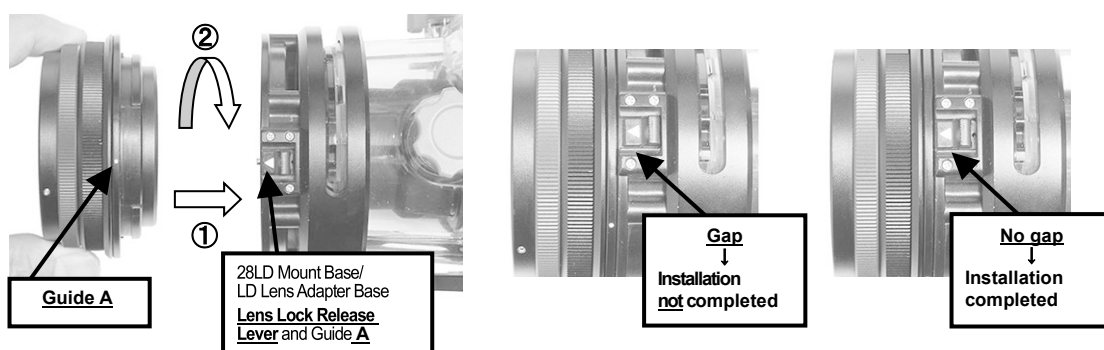
Package contents :

- UCL-90 LD Close-up Lens①
- M65 Screw Protective Ring (Pre-installed) ②
- Lens Cap (front side③x1, camera side④x1)
- Anti Ghost Sticker x 1
- This user manual



Installation Method :

- Remove lens cap by turning it counterclockwise.
- Apply a little amount of grease (supplied with an underwater housing) on the leading edges of the bayonet as shown in the image (total three points).
- Put this product on the 「28LD Mount Base」 / 「LD Lens Adapter Base」 so that 「Guide A」 of this product is coupled to 「Guide A」 of the 「28LD Mount Base」 / 「LD Lens Adapter Base」 (①).
- Rotate the this product clockwise (②) until the lens lock release lever of the 「28LD Mount Base」 / 「LD Lens Adapter Base」 moves back to the original position where you should feel and hear clicking.



It is necessary to fill the space between UCL-90 LD and housing port with water, so attach UCL-90 LD underwater or partially unscrew the lens allowing inside air to escape then retighten.

Precautions :

- Pre-installed gray "M65 Screw Protective Ring" is recommended not to remove all the time unless stacking another lens. This ring is to protect threaded part for installing optional 「Lens adapter Ring for UCL-67/90」.

- Periodically remove 「M65 Screw Protective Ring」 and apply a little amount of grease to prevent anchoring by salt-build-up or electrical erosion. Please refer to 「Maintenance」 section for detail.
- Generally, a close up lens shortens camera's minimum focusing distance (shorten combined (master lens + add-on lens) minimum focusing distance). While the UCL-90 LD allows you to shoot a subject closer achieving a larger image, distant subject may not get in focus depending on angle of view or aperture setting. Also using the UCL-90 LD with a camera having relatively close focusing distance, may not be able to shorten minimum focusing distance and benefit would be 「shorten focusing distance in particular zoom position where camera cannot work in the minimum focusing distance」 or 「shorten minimum focusing distance without using macro mode」.
- After using, never put the lens caps on or put the lens in the carry pouch with any water (salt or fresh) remaining on the lens surfaces.** Doing so may degrade the glass coatings or the glass itself, or cause spotting or discoloration. Heavy surface degradation would necessitate replacing the damaged lens element(s) which is *NOT* covered by warranty.
Especially if air temperature is relatively high where remaining water on the lens surface will be vaporized very quickly, the lens has high chance to get spot/burn with remaining water on the lens surface even for a short period of time.
- Depending on housing or shooting conditions (like shooting distance/angle of view), the lens may block the camera's built-in flash. If an external strobe is not used in such case, it would be recommend shooting with ambient light only not using the built-in flash.
- When shooting with an external strobe, using compatible external strobe (INON D-2000 etc.) connecting via INON 「Clear Photo System」 would be recommended.
Shooting without Clear Photo System may cause limitation on shooting situations or problem on an image. Refer to the boxed column on the last page of this manual for detail.
- Supplied 「Anti Ghost Sticker」 can suppress flare/ghost causing by reflection around peripheral part of the lens front. Please refer respective manual for detail of this sticker.
- Stackable INON M67 series close-up lens via optional 「Lens Adapter Ring for UCL-67/90」 is 「UCL-330」 or 「UCL-165M67」. Depending on combined camera/housing, stacking close-up lens may have significant degradation on image quality.
- Generally, it is recognized that the more lenses are stacked, the less image quality is.
- DO NOT** disassemble. Disassembling lens could cause damage and subsequent flooding, and will void warranty.
- DO NOT** subject lens to large shocks or vibrations, which can lead to damage and possible flooding.
- DO NOT** leave lens exposed to strong sunlight, especially on such surfaces as a boat deck, car dashboard etc. as the lens will collect and concentrate the sunlight, creating a fire hazard. Never attempt to see the sun or strong light source through the lens or camera to avoid irreparable injury to the eyes.
- DO NOT** leave lens exposed to strong sunlight, especially on such surfaces as a boat deck, car dashboard etc. to prevent damage and subsequent flooding.
- It is recommended to carry the lens in optional carry pouch to prevent accidental shock just before attaching on camera housing.

Maintenance

- After using, always remove UCL-90 LD from 「28LD Mount Base/LD Lens Adapter Base」. Soak the UCL-90 LD in fresh water (below 30°C/86°F) for several hours to dissolve any remaining salt, then blow off water on the both lens surface by compressed air etc. Leave the lens at shaded and well-ventilated area to dry with no water drops on the both lens surface (it may take several days to completely dry).
- Remove 「M65 Screw Protective Ring」 and apply a little amount of grease periodically to prevent anchoring by salt-build-up or electrical erosion.



- After completely dry, put lens caps on and store out of direct sunlight and well-ventilated area. **DO NOT** store the lens in area with chemical fumes, high humidity or extreme temperature fluctuations. Storage in such area may lead to damage, water leakage, lens surface degradation or mold.
- DO NOT** allow any water to dry on lens surfaces, as water spots or discoloration may result.

Optional Accessories:

- Lens Adapter Ring for UCL-67/90**
This adapter is screwed on M65 thread of the lens barrel to hold INON 「UCL-165M67」 or 「UCL-330」 in front of the UCL-90 for even higher magnification. Any other high power INON close-up lens, such as 「UCL-90 M67」, 「UCL-100M67」 or 「UCL-67 M67」 are not recommended to stack due to significant degradation of image quality.
- Neoprene Carry Pouch S**
Neoprene carry pouch to use land/underwater. Protect lens from shock and abrasion while in transport and storage, as well as while carrying underwater.
- LD Lens Holder W**
- LD Lens Holder S**
- LD Lens Holder for Float Arm**
Attaches to INON Arm/Float Arm to hold this product to help easy handling of multiple lenses underwater. In combination with 「AD-LD Mount Converter for UCL-165AD」 or 「M67-LD Mount Converter for UCL-330/165M67 other」, mount close-up lens can be carried as well.



INON Underwater Close-up Lens UCL-90 LD Specification [①]	
Type	UCL-90 LD
Size	φ75.2mm (2.96in.) x 36.4mm (1.43in.)
Weight	Air: 311g (10.97oz) / Underwater: 202g (7.13oz)
Mount	INON 28LD/LD Mount
Depth rating	60m (197ft)
Body material / finishing	Corrosion-resistant aluminum alloy / rigid black alumite, PC etc.
Lens material / finishing	Optical glass / both side coating
Construction / magnification [②]	2 groups 3 elements / 2.23x (area ratio: 4.98x)
Focal length (underwater)	90mm (3.5in.) -equivalent to +11 diopter

[①] Specification is subject to change without prior notice

[②] With AF-S VR Micro-Nikkor 105mm f/2.8G IF-ED at the minimum focusing distance.

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※ **When using built-in flash with attachment lens without Clear Photo System** ・ ・

When using built-in flash with attachment lens being mounted and Clear Photo System is not used, there may be possibility to have ghost/flare in an image depending on shooting condition/camera housing/Mount Base being used.

This is because built-in flash light gets into the attachment lens from its mounting part. In the case, it is recommended to use External Strobe with Clear Photo System. If you have to use built-in flash only by necessity, ghost/flare could be reduced by preventing built-in flash light from being get into attachment lens from its mounting part. INON Inc. assume no responsibility whatsoever for any direct/indirect damage resulting from user's modification on camera system.

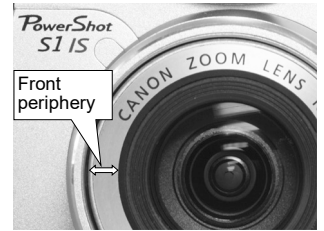
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Anti Ghost Sticker

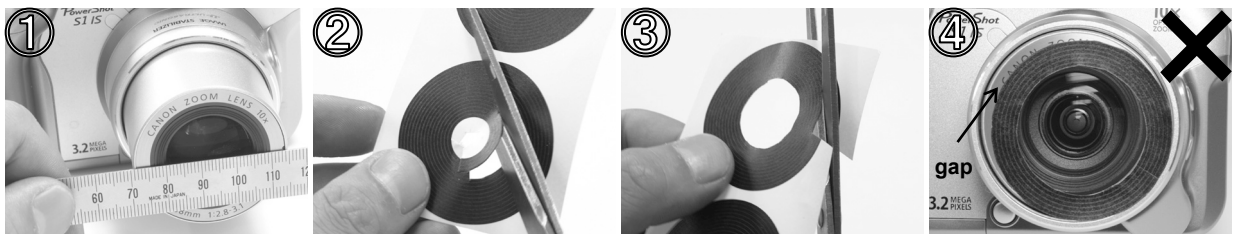
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By sticking "Anti Ghost Sticker" around the camera master lens (NOT on the lens but on its lens barrel), reflection of lens specification print or flare/ghost could be reduced especially when attachment lens being used.

Compatible digital camera: · Outer diameter of 「Camera Lens Front Periphery (*1)」 is less or equal to 44mm (1.732in.) and inner diameter is greater or equal to 12mm (0.4724in.) and satisfy following conditions:
A) 「Camera Lens Front Periphery (*1)」 does not have any coating/painting for antireflection.
B) 「Camera Lens Front Periphery (*1)」 does have some characters in print or punch mark.
(*1) A metal/plastic doughnut shape part which wrap around a camera lens. (see picture above)



How to apply : · Accurately measure outer / inner diameter of 「Camera Lens Front Periphery (*1)」 (see ①).
· Cut Anti Ghost Sticker out to measured size from inner side(②) then after cut out outer side (③) .
Do not cut inner side too much. Otherwise you may have vignetting.
· Attach the sticker on the 「Camera Lens Front Periphery (*1)」 so that the sticker covers all part of the 「Camera Lens Front Periphery (*1)」 and NOT to cover camera master lens. (④).



Flare/Ghost : Please note that effect of "Anti Ghost Sticker" is depending on camera/housing/shooting condition and "Anti Ghost Sticker" is not universally effective in every situation. Also flare/ghost could be caused by built-in strobe / external strobe / ambient light being through back of camera lens, where "Anti Ghost Sticker" does not work.

Using built-in strobe without "Clear Photo System"

When using only built-in strobe without "Clear Photo System", ghost/flare could be observed. The light from built-in strobe coming through transparent housing/housing lens port may get into attachment lens and reflect inside of attachment lens. This type of flare/ghost can be prevented by using external strobe and "Clear Photo System".

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