

# INON

# UWL-100 Achromat

# Type1/Type2

# Wide Conversion Lens

## User Manual

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### 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.

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**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.

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**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

## INON UWL-100 Achromat Wide Conversion Lens      Type.1 / Type.2

Thank you for purchasing INON product.

INON Wide Conversion Lens UWL series is an attachment lens for compatible digital camera housing to attach by simply screwing on the lens port directly or via INON M67 Mount Base to acquire extreme wide angle photography. The lens can be easily attached/detached underwater giving greater flexibility.

Compatible camera/housing/M67 Mount Base and necessary optional parts is differ between Type.1 and Type.2. Refer to the compatibility chart on the last page to check which Type should be used for your particular camera system.

### Main Features

- **Designed to be used both underwater and on land.** The lens performs as an **ultra wide converter** underwater and as a **fish-eye converter** in air (view angle underwater 100.5°/ air 158.35°[④] : with C-3030Zoom+PT-005[⑦]) and optional 「Dome Lens Unit for UWL-100」 gives almost same view angle as on land.
- In addition to enabling ultra wide angle of view, the optical design of the UWL-100 allows closer focusing distance (focus range :  $\infty \sim 0.233\text{m}/0.7644\text{ft}$  [C-3030Zoom standard mode:  $\infty \sim 0.8\text{m}/2.625\text{ft}$  without UWL-100][⑦][⑧])  $0.233\text{m} \sim 0.0383\text{m}/0.7644\text{ft} \sim 0.1257\text{ft}$  [C-3030Zoom macro mode  $0.8\text{m} \sim 0.2\text{m}/2.625\text{ft} \sim 0.6562\text{ft}$  without UWL-100][⑦][⑧]) which benefits **wide macro** shooting.
- Optical construction is coated optical glass of 4 groups 5 elements including **Achromat lens** which effectively suppress chromatic aberration and elicit master lens performance.

<b>Compatible camera : housing (as of August 2004)</b>	• INON	「DN-800」 / 「DN-880」	
	• Olympus	「PT-005」 / 「PT-007」 / 「PT-010」 / 「PT-015」	
	• Olympus	「PT-014」	+ INON 「M67Mount Base·PT-014」
	• Olympus	「PT-012」	+ INON 「M67 Mount Base·PT-012」
	• Canon	「WP-DC20」	+ INON「M67 Mount Base·DC20」
	• Canon	「WP-DC300」	+ INON 「M67 Mount Base·DC300」
	• Canon	「WP-DC200」 / 「WP-DC200s」	+ INON 「M67 Mount Base·DC200/200s」
	• Canon	「WP-DC100」 / 「WP-DC500」	+ INON 「M67 Mount Base·DC100/500」

- Package includes :**
- UWL-100 Wide Conversion Lens
  - Lens Protector (rubber: attached to lens)
  - Lens Cap (subject side x 1, camera side x 1)
  - Anti Ghost Sticker
  - This user manual

- Installation / usage method :**
- Always apply thin film of grease (grease for housing O-ring) on threaded ring of the UWL-100 to prevent 「salt corrosion」 or 「electric corrosion」 causing fixation between UWL-100 and housing/M67 Mount Base.
  - Screw UWL-100 onto housing port / M67 Mount Base. It is necessary to fill the space between UWL-100 and housing port with water, so attach UWL-100 underwater or partially unscrew the lens allowing inside air to escape then retighten.
  - When using UWL-100 on land, make sure to locate two protruding parts of the rubber protector vertically (12:00 and 6:00 o' clock position ) to prevent vignetting. If not, carefully rotate only the rubber protector to the same direction to screw in UWL-100.

- Maintenance :**
- After using, always remove UWL-100 from housing and take off the lens protector from the lens (take off the protector backwards) . Soak the UWL-100 and the protector in fresh water (below 30 deg C/86deg F) for several hours to dissolve any remaining salt, then blow off water on the both lens surface. Leave the lens at shaded and well-ventilated area to dry with no water drops on the both lens surface (it may take few days to completely dry).
  - After completely dry, attach the lens protector/caps and store out of direct sunlight and well-ventilated are. 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.
  - The angled surface of lens barrel (indicated by arrow in the image right) is an O-ring contact surface for the optional Dome Lens Unit. Be careful not to damage this area.



O-ring contact surface

**Precautions:**

- **To achieve optimum images with your equipment, start with the camera zoom set at the full Wide position.** Depending on the camera/housing used, there may be slight vignetting of the image. **In that case slightly zoom forward little by little until there is no more vignetting.**
  - **After using, never put the lens caps on or place 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.
  - **Do not disassemble.** Disassembling lens could cause damage and subsequent flooding, and will void warranty. Also, when removing the lens from housing, **grasp the middle area of the lens barrel, where there is a lanyard groove in the body instead of grasping and twisting the rubber lens protector.** Grasp this middle area and rotate to remove lens. Applying excessive torque to the rubber lens protector could cause loosening of internal parts supporting the lens elements, causing damage and subsequent flooding.
  - 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.
  - There is a lateral groove in the middle of the lens barrel, useful for attaching a lanyard. To prevent losing/damaging the lens when attaching/removing it, we recommend to band the lens with housing, carry pouch etc.
  - Depending on housing or shooting conditions (like subject distance / angle of view), the lens may block the camera's built-in strobe from illuminating the entire image. In such cases we recommend to shoot with ambient natural light only or use an external strobe, such as the INON D-2000 connecting via INON 「Clear Photo System」.
- Without using Clear Photo System may cause limitation on shooting situations or problem on an image.** Refer to the boxed Column on the last page for detail.
- Do not remove the pre-installed lens protector except maintenance.
  - The silicon grease on the glass element sealing o-rings may leach out somewhat onto the lens surface. This is no problem, as the grease will not penetrate the lens material. If in the course of use, some grease does leach out, lightly wipe with commercially available lens paper or microfiber cloth, making sure the surrounding glass area is first clean, with no sand or other debris.

**Optional Accessory:**

- **Dome Lens Unit for UWL-100**  
Dome lens specifically designed for UWL-100 (PAT.P). Fits on top of UWL-100 front lens element. Increases underwater angle of view close to that of above water angle of view. Enables closer focusing. Includes dome lens protector to protect dome and reduce flare.
  - **UWL-100 Neoprene Carry Pouch**  
Neoprene carry pouch to be used underwater. Protect lens from shock and abrasion while in transport and storage, as well as while carrying underwater.
  - **PT-005 Adapter Ring**  
Adapter ring necessary to install UWL-100 Type 1 on Olympus PT-005, PT-007, PT-010 includes a tool for installation/removal.
  - **Port Arm D Spacer (for PT-007/010)**  
Spacer ring necessary to use 「Port Arm D」 for UWL-100 Type 2 attached on Olympus 「PT-007/010」.
  - **M67 Mount Base ·PT-014**
  - **M67 Mount Base ·PT-012**
  - **M67 Mount Base ·DC20**
  - **M67 Mount Base ·DC300**
  - **M67 Mount Base ·DC200/200s**
  - **M67 Mount Base ·DC100/500**  
Mount Base to use UWL-100 Type 1/Type 2 on a housing which does not equipped with threaded mount of M67/0.75pitch.
  - **M67 Lens Holder S**
  - **M67 Lens Holder W**  
Attaches to INON Arm System to hold one(S) or two(W) M67 Mount Series Lenses to help easy handling of multiple lenses underwater.
- ※Maximum attachable number: 1 for Grip Base DII, Arm SS and Arm S. 2 for Arm M. 3 for Arm L.



## UWL-100 Compatibility and Focus range chart (at wide end)

Housing	Camera	Mount ⑩	Useable Type		Focus Range (without UWL-100) [9]		Vignetting[10]	
			Type.1	Type.2	Normal Mode	Macro Mode	Underwater	Air
PT-015 [10]	C-5050Z	Direct	×	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[5]
PT-010 [10]	C-4100Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	[5]	[6]
	C-4040Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[5]
	C-3040Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[5]
	C-2040Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	None
	C-3030Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	[5]	[6]
	C-3000Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	[5]	[6]
	C-2020Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[7]
PT-007 [10]	C-3040Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[5]
	C-2040Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	None
	C-3030Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	[5]	[6]
	C-3000Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	[5]	[6]
	C-2020Z	Direct	○	⊙	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[7]
PT-005 [10]	C-3030Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[5]
	C-3000Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	[5]
	C-2020Z	Direct	○	×	∞~23.3cm (∞~80cm)	23.3cm~3.8cm (80cm~20cm)	None	None
PT-014 [10]	X-2/X-1	M67 M.B.	▲	●	∞~13.6cm (∞~50cm)	13.6cm~3.8cm (50cm~10cm)	None	[7]
PT-012 [10]	C-40Z	M67 M.B.	▲	●	∞~23.3cm (∞~80cm)	23.3cm~0.6cm (80cm~10cm)	None	[7]
DC20 [10]	S11S	M67 M.B.	●	▲	∞~0.6cm (∞~10cm)	N/A	None	None
DC300 [10]	S40	M67 M.B.	▲	●	∞~23.3cm (∞~80cm)	23.3cm~0.6cm (80cm~10cm)	None	[7]
	S30	M67 M.B.	▲	●	∞~23.3cm (∞~80cm)	23.3cm~0.6cm (80cm~10cm)	None	[7]
DC200s [10]	A40	M67 M.B.	●	▲	∞~22.0cm (∞~76cm)	22.0cm~2.5cm (76cm~16cm)	None	[7]
	A30	M67 M.B.	●	▲	∞~22.0cm (∞~76cm)	22.0cm~2.5cm (76cm~16cm)	None	[7]
DC200 [10]	A20	M67 M.B.	●	▲	∞~22.0cm (∞~76cm)	22.0cm~2.5cm (76cm~16cm)	None	[7]
	A10	M67 M.B.	●	▲	∞~22.0cm (∞~76cm)	22.0cm~2.5cm (76cm~16cm)	None	[7]
DC500 [10]	IXY D300a	M67 M.B.	▲	●	∞~22.0cm (∞~76cm)	22.0cm~2.5cm (76cm~16cm)	None	[7]
DC100 [10]	IXY D300	M67 M.B.	▲	●	∞~22.0cm (∞~76cm)	22.0cm~2.5cm (76cm~16cm)	None	[7]
DN-880	E 880	Direct	⊙	×	∞~10.3cm (∞~40m)	(Not usable at wide end)	None	None
DN-800	E 800	Direct	⊙	×	∞~7.1cm (∞~30cm)	(Not usable at wide end)	None	None

⊙ : Attach on housing directly ○ : Optional [PT-005 Adapter Ring] is necessary × : Not useable (Type. change is necessary to avoid vignetting/poor image quality) ● : Attach on compatible M67 Mount Base, ▲ : Type change is recommended to avoid possible image quality degradation though attaches on compatible M67 Mount Base.

① Specifications is subject to change without prior notice.

② Including lens protector

③ Performance of UWL-100 itself (telescopic magnification :  $\bar{v}$ )

④ Actual angle of view vary depending on camera/housing.

⑤ Slight vignetting on four corners. Zoom little bit to telephoto side.

⑥ Noticeable vignetting on four corners. Zoom to telephoto side.

⑦ Untested. No vignetting or slight vignetting is expected.

⑧ When using Type.1, optional [PT-005 Adapter Ring] is necessary. Refer to user manual of [PT-005 Adapter Ring] for detail.

⑨ Measured distance on land/visual distance underwater. Multiply by 1.33 for measured distance underwater.

⑩ Angle of view/vignetting may vary depending on housing model even using same camera.

⑪ **Direct** : When directly attaching on housing/protector.

When using Type 1 on Olympus [PT-005/PT-007/PT-010], it is necessary to replace genuine [Lens Ring] with optional INON

[PT-005 Lens Ring]. Refer to user manual of [PT-005 Lens Ring] for detail of installation method and precautions.

**M67 M.B.** : When attaching on compatible M67 Mount Base.

Compatible [M67 Mount Base] is necessary. Refer to user manual of [M67 Mount Base] for detail.

INON Wide Conversion Lens UWL series	
Specifications [1]	
Model	UWL-100 Achromat Type.1 / Type.2
Outer diameter [2]	φ 100mm / 3.987in.
Length [2]	58.5mm / 2.303in.
Thread size / pitch	M67 / 0.75
Weight [2]	Air : 625g / 20.17oz UW : approx. 370g / 11.94oz
Depth rating	60m / 196.9 ft
Body material / finishing	Corrosion resistant aluminum alloy / Black hard alumite
Glass material / finishing	Optical glass / both side coating
Construction / magnification [3]	4 groups / 5 elements / 0.57077 (afocal system)
Max. angle of view [4]	100.5°

INON Inc.

2-18-9, Dai, Kamakura

Kanagawa 247-0061

E-mail [support@inon.co.jp](mailto:support@inon.co.jp)

Fax. +81(0)467-48-2178

URL <http://www.inon.co.jp/>

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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.**

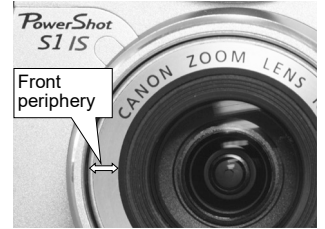
# INON

## Anti Ghost Sticker

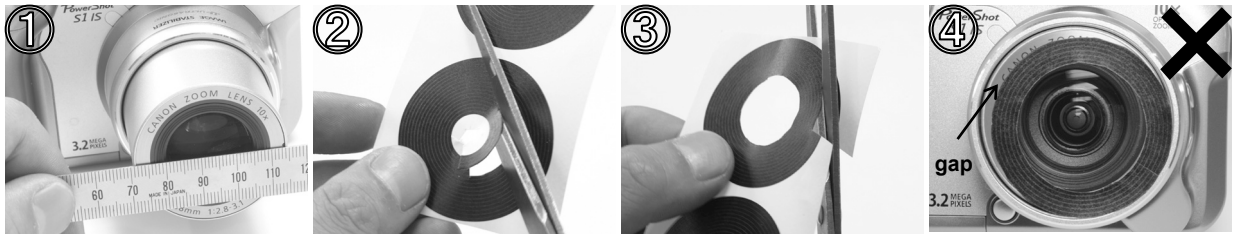
Thank you for purchasing INON products.

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".

INON Inc.

2-18-9, Dai, Kamakura  
Kanagawa 247-0061

E-mail [support@inon.co.jp](mailto:support@inon.co.jp)

Fax. +81(0)467-48-2178

URL <http://www.inon.co.jp/>

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