

Advanced TTL Auto shooting at affordable price High performance · "S-TTL" underwater auto strobe

INON

D-2000S



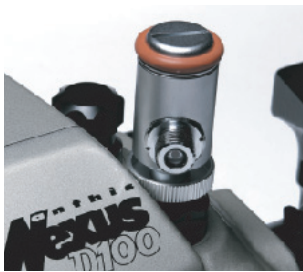
D-2000 strobe is equipped with advanced functions including 『"S-TTL" Auto』 flash mode which enables compact point and shoot digital camera user to shoot in "TTL" and acknowledged standard model as digital camera compatible strobe.

D-2000S is equipped with well selected important functions such as 『"S-TTL" Auto』, 『Manual flash output in 13 steps with 1/2 EV increments』. External Auto mode and Focus Light is not mounted to simplify its control and restrain product price.

D-2000S best matches not only for beginner but also for D-2000 series user as 2nd 『"S-TTL" Auto』 strobe for dual strobe configuration. Dual D-2000 series enables to control shadow of a subject to meet professional needs.

※ Main features of D-2000S are same as D-2000 except External Auto flash mode, Focus light function and weight.
※ Weight on land: approx.506g (without batteries), weight underwater: approx.26g (including 4 x AA NiMH batteries)

Convert DSLR Electrical Signal into Optical Signal



Optical Converter D

Converts electrical signal of Nikon D100/D70 into optical signal to work with D-2000 series and D-180 series strobe in optical connection.

『Nexus D100/D70』 camera system which does not allow to emit built-in flash can use external auto/manual strobe shooting without flooding problem at electrical connector. Optical Converter enables the camera system to change strobe underwater.

★ 『"S-TTL" Auto』 mode is not available when using Optical Converter D for D-2000 series. Available flash mode is 『External Auto』 / 『Manual』 in D-2000/D-2000W/D-2000Wn and 『Manual』 in D-2000S.

『Optical Converter D』 compatible camera system : Nikon D100 + Anthis Nexus D100, Nikon D70 + Anthis Nexus D70
『Optical Converter D』 compatible strobe (*1)(*2) : INON D-2000, D-2000S, D-2000W, D-2000Wn, D-180, D-180S

*1) Operational limitation is vary depending on camera model.
*2) A strobe not listed above is assumed not to be compatible. However some "TTL Auto Strobe System" may work with some operational limitation. Contact INON for detail.

Convert Nikonos compatible Electrical Signal into Optical Signal Optical Converter TTL for X1 Optical Converter TTL for NIKONOS

Converts Nikonos compatible electrical signal into optical signal to work a film camera system with D-2000 series, Z-220 series and compatible TTL strobe with 『TTL Sensor』 in optical connection.

Optical Converter TTL enables 『Old INON X-1 series』 or 『Nikonos』 to work in optical connection which is free from flooding problem at electrical connector and also enables to change strobe underwater. Choose appropriate 『Optical Converter TTL』 depending on camera system and connector orientation.



★ A camera/camera system with 『Optical Converter TTL』 operates as though "external strobe in TTL Auto mode is equipped and fully charged" regardless of strobe's ON/OFF setting. Though selecting no strobe shooting (turning OFF external strobe), camera may have to have operational limitation (shutter speed etc.)

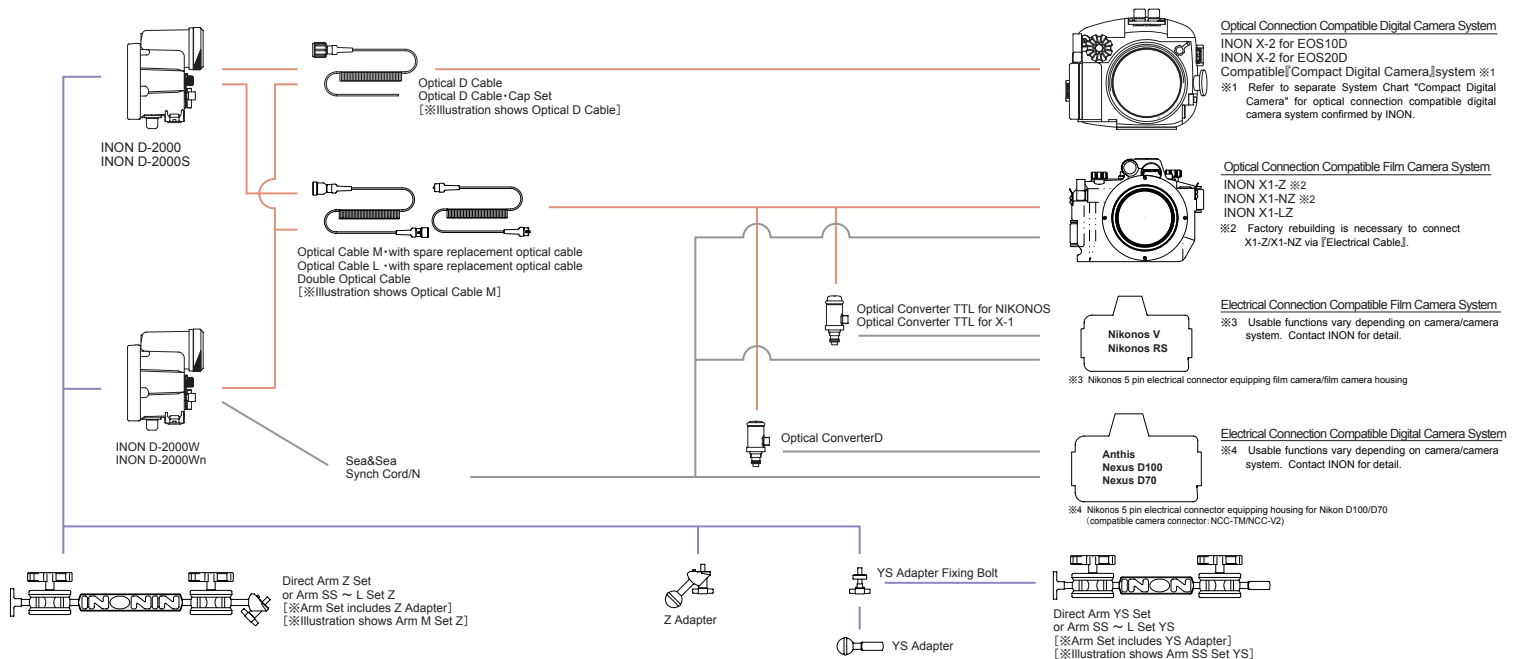
『Optical Converter TTL for X1』 compatible camera system: INON X1-LG, X1-L, X1-G, NewX1(*3), X1(*3)
『Optical Converter TTL for NIKONOS』 compatible camera: Nikon NIKONOS V(*4), NIKONOS RS(*5)
『Optical Converter TTL』 compatible strobe(*6) : INON D-2000, D-2000S, D-2000W, D-2000Wn, Z-220F, Z-220S, Z-220, INON TTL Sensor Z + INON Z-22, INON TTL Sensor SB + Nikon SB-105, INON TTL Sensor YS + Sea&Sea YS-30TTL Duo, YS-90TTL Duo, YS-120TTL Duo

*3) It is necessary to refurbish housing at INON.
*4) External strobe is not usable with 『Optical Converter TTL』 when set camera to 『B(bulb)』 or 『M90(1/90)』
*5) Compatible auto flash mode is 『TTL Auto』 only. 『TTL-BL Auto』 is not usable.
*6) Focus Light/Target Laser can be turned ON/OFF on strobe's switch operation. Focus Light of D-2000/D-2000W/D-2000Wn can not be turned OFF manually.

INON D-2000 Series

SYSTEM CHART for Digital SLR camera & Film camera

— Optical signal flow
— Electrical signal flow
— Installation flow



INON

X-2

Scheduled to be released in April, 2006

Compatible digital camera :
CANON EOS 20D, 10D (※1)

(※1) 10D model will be BTO (built to order).
Preorder should be made during 2006/2/13~2006/3/3
Delivery timing will be determined after preorder.



- Equipped with a viewfinder to see same size of shooting subject as in camera's view finder even though you see through mask underwater without vignetting in any eyesight. (※2)

Conventional pick-up finder scale down finder sight by lengthen its eye point to see a subject through mask without vignetting. It would be quite hard to exercise comfortable focusing underwater with conventional pick-up finder since CCD size of Canon 20D/10D is smaller than 35mm film size. With INON's 45° viewfinder, you can see whole eyesight with same finder magnification as camera's viewfinder even through mask underwater.

Angled (45°) viewfinder helps you to shoot a subject on sea floor like a goby in sand area. 360° rotatable construction suits to take low angled vertical shot (※2) A model with 45° viewfinder.

- Underwater TTL multi-strobe shooting is available with digital SLR camera.

Four optical connectors are equipped and free from flooding risk which could happen with conventional electrical connector. Maximum four strobes can be connected even underwater for TTL Auto Strobe Shooting which require only composition and pressing shutter to get correct exposure.

Two Nikonos type electrical connectors (X-synch) can be added on as optional feature and you can use Nikonos compatible conventional strobes. The two electrical connectors work together with four optical connectors. so maximum 6 strobe shooting is possible.

(※3) TTL shooting compatible strobe (S-TTL) : D-2000S, D-2000, D-2000W, D-2000Wn (as of 2006.2)

※ 20D is fully compatible with S-TTL but 10D has different TTL system and not compatible with S-TTL. External Auto and Manual mode works with 10D.

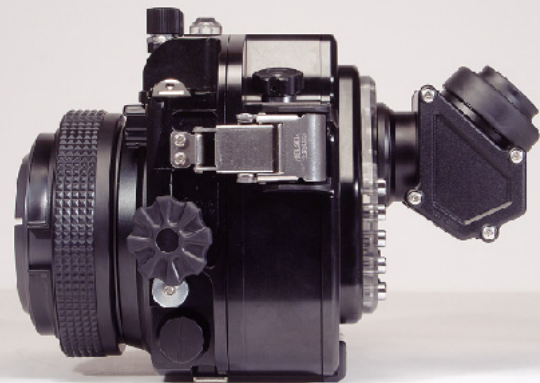
- Control system layout is designed to be stress-free underwater. The layout is not just only to equip necessary control button/dial to use 20D(10D) underwater but to acquire user-friendliness. Especially, right hand control system allows you to comfortably change aperture or shutter speed which is necessary in manual shooting with holding a grip.

- Compact body size is 178(w) × 158(h) × 116mm(d) (excluding projected parts) and lightweight of machined corrosion-resistant aluminum alloy. Its quality level can not be obtained with cast product.

■ Weight: 2,020 g Weight (underwater): 550 g (with EF-S60mm Macro) ※ Including 45° viewfinder

- INON X-1 series port (which use multi-coated optical lens) is also compatible with X-2 housing to exploit high performance of EOS20D(10D).

- Equipped with a leak sensor to warn water leakage by red LED and buzzer. Other unique feature of X-1 housing like 3D guide system is inherited by X-2 housing.



MRS 60 Port

Scheduled to be released April, 2006

EF-S60mm Macro USM will have advantage of MRS Port which was only for EF100mm Macro. MRS Port uses magnet attraction power and enables focusing operation by rotating lens barrel as on land with light torque (※4)

EF-S60mm Macro USM is a compact macro lens without changing its lens barrel length when focusing and can zoom in/zoom out all the way in half rotation of control ring to shoot life size macro shot. MRS60Port is compact and has controllability underwater with advantageous character of MRS system. M67 screw mount is equipped with port edge and CUL-330, UCL-165M67 can be installed.

(※4) MRS system is patented in U.S. and Japan.



INON

Simple & Secure

Dual Strobe Setting for ALL Model



"Wanna take more little fish?" "Wanna take big fish entire in the image?"
 "Wanna more wide shot?" "Wanna more clear image without marine snow?"
 You need External Strobe and Wide Lens / Close-up Lens to be changeable underwater. What do we expect for underwater accessories in severe condition? Yes, we need "Simple & Secure" system.
 INON strobe system and attachment lenses are yet compact, easy handling but exceptional performance for every user. INON products aim to comply with every Digital Camera User's high requirements. INON produce unique system with consistent pursuits for uncompromising standards.



Dual strobe configuration with "Grip Base DII with Rubber Grip D" for (left hand) and "Grip Base DIII for right hand)". Two screws attachment for secure fixation to Mount Base.

INON
can do it!

No.1

Reliable Flashing

INON "Optical D Cable/Cap Set" faultlessly catch integral strobe light to trigger external flash unit. Comparing with existing Wireless Slave System, "Optical D Cable/Cap Set" adopts Optical Fiber so the trigger light of integral strobe is transmitted more surely to external strobe, even in severe condition like just under the surface or with backlight. INON "Clear Photo System" solves the problem of transparent housing like marine snow, ghost and flare. The INON Fiber Optical Cable is made up of more than 200 fibers. Each fiber is more thinner than hair. This multi core structure enables INON Fiber Optics Cable to be high tolerance for breakage. (minimum bend radius: 2mm) Though outside design is similar to other manufacture's fiber optics cable, their structure is single core, which limits its minimum bend radius to 10mm. At the minimum bend radius, the fiber optics cable with single core loose about 50% of optical signal relative to its performance without bending. This could result improper flash of external strobe. INON Fiber Optics Cable acquire not only assure signal transmission but also enable to have scroll-work.



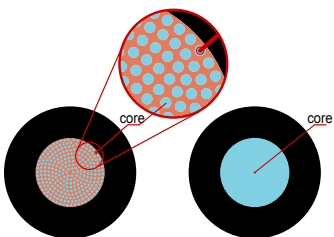
↑Optical Cable/Cap Set↑ attached to a white diffuser panel of genuine protector.



↑Optical Cable/Cap Set↑ attached to AD Mount Base

Housing	Optical D Cable/Cap Set	Necessary parts
Olympus PT-005, 007, 010	Optical D Cable/Cap W2 Set	None *Directly attached on housing diffuser
Olympus PT-009, 012	Optical D Cable/Cap W4 Set	AD Mount Base PT-012, 009, M67 Mount Base PT-012, 009
Olympus PT-014	Optical D Cable/Cap W6 Set	AD Mount Base PT-014, M67 Mount Base PT-014
Olympus PT-015	Optical D Cable/Cap W18 Set	None *Directly attached on housing diffuser
Olympus PT-016	Optical D Cable/Cap W8 Set	AD Mount Base PT-016
Olympus PT-018	Optical D Cable/Cap W7 Set	None *Directly attached on housing diffuser
Olympus PT-020	Optical D Cable/Cap W9 Set	None *Directly attached on housing diffuser
Olympus PT-022	Optical D Cable/Cap W10 Set	None *Directly attached on housing diffuser
Olympus PT-023	Optical D Cable/Cap W16 Set	None *Directly attached on housing
Olympus PT-024	Optical D Cable/Cap W15 Set	AD Mount Base PT-024
Olympus PT-026	Optical D Cable/Cap W18 Set	AD Mount Base PT-026
Olympus PT-027	Optical D Cable/Cap W9 Set	None *Directly attached on housing diffuser
Olympus PT-029	Optical D Cable/Cap W19 Set	AD Mount Base PT-029
Olympus PT-030	Optical D Cable/Cap W20 Set	AD Mount Base PT-030
Olympus PT-031	Optical D Cable/Cap W21 Set	AD Mount Base PT-031
Canon WP-DC300, DC200, DC200S, DC100, DC500, DC700, DC800, DC900, DC30, DC50	Optical D Cable/Cap W3 Set	AD Mount Base DC300, DC200/200S, DC100/500, DC700/30, DC800, DC900/50, M67 Mount Base DC300, DC200/200S, DC100/500
Canon WP-DC20	Optical D Cable/Cap W18 Set	M67 Mount Base DC20
Canon WP-DC70, DC80	Optical D Cable/Cap W22 Set	AD Mount Base DC70/80
Canon WP-DC40, DC1	Optical D Cable/Cap W23 Set	28AD Mount Base DC40, DC1
Nikon WP-CP1	Optical D Cable/Cap W12 Set	AD Mount Base CP1
Nikon WP-CP4, CP2	Optical D Cable/Cap W11 Set	AD Mount Base CP4/2
Fuji Photo Film WP-FX701	Optical D Cable/Cap W13 Set	AD Mount Base FX701
Fuji Photo Film WP-FXF10	Optical D Cable/Cap W3 Set	AD Mount Base FXF10
Sony MPK-PHB	Optical D Cable/Cap W14 Set	AD Mount Base PHB
Sony MPK-WA	Optical D Cable/Cap W24 Set	AD Mount Base WA
Sony MPK-NA	Optical D Cable/Cap W25 Set	AD Mount Base NA

※Optional ↑Optical D Cable↑ is necessary for Optical D Cable Cap W2/W25 Set to use 2nd strobe.



INON Fiber Optics Cable(multi core) Fiber optics (single core)
Cross sectional illustration



High tolerant plastic fiber optics. Pinch the cable without any damage! The high tolerance leads secure optical signal transmission.

No. 2 Secure Setting



Optical D Cable/Cap Set to be attached on AD Mount Base.



Optical D Cable/Cap Set to be attached on white diffuser panel of genuine housing



Mirror is equipped with Optical D Cable/Cap Set. This mirror works to transmit light from built-in strobe to fiber optics



Fiber optics receiving part and its cap. Fiber optics is securely placed into the parts by tightening the cap. Extra hole for additional fiber optics for add-on strobe.



Optical D Cable is attached to strobe by screwing. So the cable never drops off underwater. This system gives secure optical signal transmission.

It is important to "catch" the light of built-in strobe for adequate flash of D-2000 series. INON Optical D Cable is designed so as to attach its light receiving part of fiber optics in front of built-in strobe with screw-on. Screw-on setting is free from abrupt dropping off which would happen in case of Velcro strap or sucker. The fiber optics holding part can hold two cables for dual strobe configuration and once fiber optics insert in the holding part, inner rubber rapped around the cable and squeezed by placing cap. The holding part is equipped with collection mirror to catch the trigger light from built-in strobe. Each collection mirror is uniquely designed for each different camera having specific location for their built-in strobe. Fiber optics connector is screwed on Slave Sensor of D-2000 series. INON Optical Cable System prepare for as many contingencies as possible in underwater with its high quality

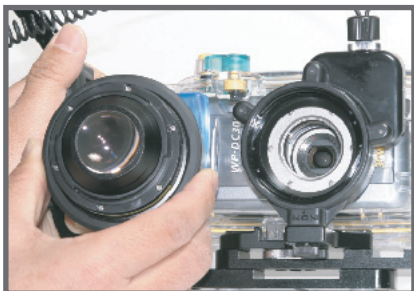
No. 3 Easy and Steady Lighting

While you shoot, optical axis of D-2000 should be aimed to your subject. However, this could be difficult under unstable neutral buoyancy condition. Our solution is to have "fixed Arm". "Grip Base DII with Rubber Grip D" can hold D-2000 at certain position so its optical axis intersects optical axis of camera. You only have to swing D-2000 depending on distance to subject. You can add another INON Arm between Grip Base DII and D-2000 for sophisticated light work like angled lighting. Though flexible arm looks like to have wide compatibility for lighting, it is hard to align the optical axis to your subject especially for beginners. You never have same situation since subject and environment alternate continuously. Lovely scene doesn't wait until you are ready. Therefore we would suggest simple lighting system.



Simple strobe positioning depending on distance to subject by swinging D-2000 on the arm. That's it. You can check if the axis of strobe situate in right position with Focus Light. Focus light never expose on image since it automatically turns off during exposure.

No. 4 Easy and Secure Lens handling



AD Mount Series Lens can be easily installed into AD Mount Base and 28AD Mount Series Lens can be easily installed on AD Mount Base / AD Mount Port. It is free from abrupt dropping off. You can have free choice among Wide Conversion Lens, Fish-eye Lens or Close-up Lens depending on your subjects and easily exchange lens underwater.

INON AD Mount Base and 28AD Mount Base / 28AD Port is designed for latest compact waterproof housings. AD Mount Base is equipped with universal lens mount for wide variety of attachment lens to be used for all users. Lens attachment adopt bayonet system, which enables to install AD Mount Series Lens; form fish-eye lens to close-up lens (※1) on AD Mount Base, or to install 28AD Mount series lens (※2) which is exclusively designed for a camera with 28mm wide master lens, on AD Mount Base / AD Mount Port, and is securely attached or detached in one action. AD Mount Base / AD Mount Base / AD Mount Port is fixed on to housing via two points. One is rubber pressure welding circumference of lens port, which works also as for positioning. The other is at housing tripod hole with screwing. With tightening by screw, AD Mount Base/28AD Mount Base/28AD Port firmly attach to housing. Off course, INON Mount Base is fully compatible with optional Optical D Cable/Cap Set. So trigger signal from a camera is securely transmitted to D-2000 series.

AD Mount Base Compatibility Chart

Housing	Compatible AD Mount Base
Canon WP-DC70, DC80	AD Mount Base · DC70/80
Canon WP-DC90, DC50	AD Mount Base · DC90/50
Canon WP-DC800	AD Mount Base · DC800
Canon WP-DC700, DC30	AD Mount Base · DC700/30
Canon WP-DC300	AD Mount Base · DC300
Canon WP-DC20, DC200S	AD Mount Base · DC200/200S
Canon WP-DC100, DC500	AD Mount Base · DC100/500
Olympus PT-031	AD Mount Base · PT-031
Olympus PT-030	AD Mount Base · PT-030
Olympus PT-029	AD Mount Base · PT-029
Olympus PT-026	AD Mount Base · PT-026
Olympus PT-024	AD Mount Base · PT-024
Olympus PT-016	AD Mount Base · PT-016
Olympus PT-014	AD Mount Base · PT-014
Olympus PT-012	AD Mount Base · PT-012
Olympus PT-009 (※)	AD Mount Base · PT-009
Nikon WP-CP4/2	AD Mount Base · CP4/2
Nikon WP-CP1	AD Mount Base · CP1
Fuji Photo film WP-FXF10	AD Mount Base · FXF10
Fuji Photo film WP-FX701	AD Mount Base · FX701
Sony MPK-NA	AD Mount Base · NA
Sony MPK-WA	AD Mount Base · WA
Sony MPK-PHB	AD Mount Base · PHB

28AD Mount Base Compatibility Chart

Housing	Compatible AD Mount Base
Canon WP-DC1	28AD Mount Base · DC1
Canon WP-DC40	28AD Mount Base · DC40

28AD Port Compatibility Chart

Housing	Compatible AD Mount Base
Olympus PT-027, 020	28AD Port · PT-027/020

※ AD Mount base can be physically attached on PT-009 but vignetting at Wide side with UFL-165AD / UWL-105AD / UCL-165AD.



AD Mount Base · DC300



AD Lens Holder

Holds Attachment lens on Grip Base DII with Rubber Grip D, Grip Base DIII or Arms. This is essential accessory for those divers want macro, wide, super macro and ultra macro in single dive. Also helps to exchange lenses underwater. Holds 1 or 2 lens depending on your choice.

※ Maximum number of holding lens
1 : Grip Base DII with Rubber Grip D, Grip Base D III, Arm SS, Arm S
2 : Arm M
3 : Arm L

INON D-2000 "S-TTL" changes underwater lighting concept

Fine tune for desired exposure and shadow control with dual strobe



■ INON D-2000

"S-TTL" Auto of "Ultra Multi Mode" D-2000 series is not just to work out "Full Automatic Strobe shooting" with point and shoot digital camera.

- Flash output can be finely adjusted even though in underwater TTL Auto circumstance for desired exposure.
- Three dimensional appearance can be obtained by adjusting balance of flash output to control shadows under dual strobe configuration.

D-2000 series enables above function which was impossible with existing underwater TTL Auto Strobe, by simply clicking control dial.

D-2000 series meets the needs of high sensitivity that can not be satisfied with existing underwater TTL Auto strobe.

No.1

Fine flash output tune for desired exposure in TTL AUTO

【Flash output compensation using [EV. Control Switch] in "S-TTL" Auto Mode】



【Bit brighter】

EV.Control Switch : A



【Standard position】

EV.Control Switch : B



【Bit dark】

EV.Control Switch : C



【Rather dark】

EV.Control Switch : C -



It will get hard to express one's image with existing underwater Auto Strobe when a user gains experience of underwater photography. This is because that desired exposure is vary by each photographer's sensitivity and appropriate exposure is also vary depending on shooting condition. "S-TTL" of D-2000 series enables fine adjustment of flash output based on desired exposure or appropriate exposure which may vary depending on shooting condition. Manually controllable [EV Control Switch] enables you to select "real" appropriate exposure by simply dialing the switch.

Improved usability comparing to existing underwater TTL Auto Strobe. Please "feel" D-2000 series using following examples.

● Sample data

- Set D-2000 to "S-TTL Auto Mode" and set [EV Control Switch] to 『B』 position.
- Compare different setting of 『A』 for 【Bit brighter】 , 『C』 for 【Bit dark】 and 『C-』 for 【Rather dark】 , then select "real" appropriate exposure setting.

● Note

- Actual exposure may be different from the sample depending on camera/shooting condition/shooting parameters (aperture, distance to subject etc.) though setting[EV Control Switch] to 『B』 .

● Equipments

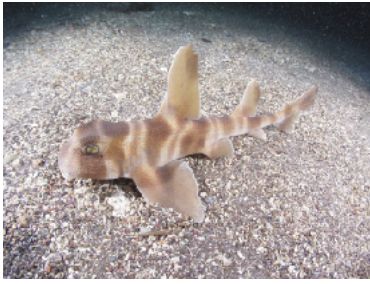
- Camera/Housing :C-5050Z / PT-015
- Strobe : D-2000 x 2 (Both strobe set to "S-TTL" Auto)
- Attachment lens :UCL-165M67 x2

● Photo data / Subject

- Camera setting : f2.6 at 1/1,000, ISO=100, Telephoto end, with Macro Mode ON
- Subject: Piano blenny (face size :approx.1.5cm width)
- Distance to subject : approx. 5cm
- Location : Fukuura, Photo by R.Hattori

【Flat lighting, bit overexposed】

"S-TTL" Auto side
EV Control Switch : B
(select position at correct exposure)



External Auto side
Aperture : F8.0



Configure another D-2000 series/D-180 series as External Auto Strobe.

It was impossible for existing underwater TTL Auto Strobe to intentionally control balance between right and left strobe under dual strobe configuration. And only "flat" lighting was available. However, by setting D-2000 series to "S-TTL" Auto and another D-2000 series, D-180 series to External Auto, darkness of shadow can be controlled.

When using D-2000 series x 2, 『S-TTL Auto』 and 『External Auto』 can be easily switched by dialing control knob and enables to control not only darkness of shadow but can select which side of a subject you have shadow. The function to control shadow under dual TTL Auto Strobe was possible with high-end SLR camera system to be used on land.

Improved usability comparing to existing underwater TTL Auto Strobe
Please "feel" D-2000 series using following examples.

【Soft shadow】

"S-TTL" Auto side
EV Control Switch : B
(select position at correct exposure)



External Auto side
Aperture : F5.6



● Sample Data

- Set 『S-TTL Auto Mode』 in the opposite side (『Left』 side in this sample) of D-2000 to shadow side (『Right』 side in this sample) .
- Set base exposure position (『B』 in this sample) with 『EV Control Switch』 .
- Set the other D-2000 to External Auto Mode and select same aperture value as camera's setting on EV Control Switch (select f5.6 corresponding to camera's setting in this sample). With above setting, base lighting is obtained (『soft shadow』 in this case).
- Change aperture setting of the D-2000 (as External Auto Strobe) and take shots; 『F8』 for 『flat lighting, bit overexposed』 , 『F4』 for 『normal shadow』 and 『F2.8』 for 『dark shadow』
- In the case 2 x D-2000 being used, direction of shadow can be easily reversed by setting to a right-to-left contrary.

● Note

- It is necessary to connect housing and each strobe directly by specific 『Optical D Cable/Cap Set』 and 『Optical D Cable』 exclusively designed for the housing to be used.
 - Standard position of 『EV Control Switch』 for appropriate exposure may differ from position 『B』 depending on camera, shooting condition or camera setting (such as distance to subject, aperture setting etc.)
- D-2000 series and D-180 series can be used as second strobe. When using D-180 or D-180S as 2nd Strobe, it may be necessary to step down aperture setting on the strobe over camera's aperture setting since flash system of D-180/D-180S is different from the system of D-2000 series (1st strobe).
- It is possible to select manual flash output on the strobe not to be used in "S-TTL" Auto. In this case, total light amount is adequately controlled by the 1st D-2000 within "S-TTL" Auto exposure range. Make sure to set Advanced Cancel Circuit ON regardless of using External Auto/Manual.
- A camera which allows to fix aperture setting and ISO sensitivity, is desirable to set 2nd strobe in External Auto or Manual.



【Normal shadow】

"S-TTL" Auto side
EV Control Switch : B
(select position at correct exposure)



External Auto side
Aperture : F4.0



【Dark shadow】

"S-TTL" Auto side
EV Control Switch : B
(select position at correct exposure)



External Auto side
Aperture : F2.8



● Equipments

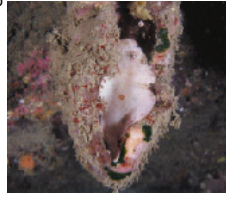
- Camera/housing : C-5050Z / PT-015
- Strobe : D-2000 x 2 (one in "S-TTL" Auto mode and the other in External Auto mode)
- Attachment lens : UWL-100 Achromat Wide Conversion Lens Type 2 + Dome Lens Unit for UWL-100

● Photo Data/Subject

- Camera setting : f5.6 at 1/1,000, ISO100, telephoto end with Macro mode ON
- Subject : Cat shark (Length 30cm approx.) Distance to subject : 20cm approx. Location : Fukuura, Photo by R. Hattori

【D-2000 flashes stronger】

Set D-2000 to "S-TTL" Auto
EV Control Switch : B
(select position at correct exposure)
Attach 『-0.5 Diffuser』



Set Z-220 to TTL Auto



Configure Z-220 series (TTL Auto) as 2nd strobe.

When attaching adequate "diffuser panel" on D-2000, shadow can be controlled by using Z-220/Z-220S in TTL Auto as 2nd strobe.

● Sample data

- Attach 『-0.5』 diffuser panel on D-2000 (left side on the subject) and set 『"S-TTL Auto" mode』 . Then set 『EV Control Switch』 to standard position 『B』 (in this case, set position 『B』)
- Set Z-220 series (right side on the subject) to TTL Auto mode then D-2000 emits stronger flash output resulting in making shadow according to shooting condition.
- If you prefer to have shadow on the other side of the subject, attach 『-1.5』 diffuser panel on the D-2000. [D-2000 emits low flash output] .

● Equipments

- Camera/housing : C-5050Z / PT-015
- Strobe : D-2000 ("S-TTL" Auto mode), Z-220 (TTL Auto mode)

● Note

- As in the right image, D-2000 and the housing has to be connected via specific 『Optical D Cable/Cap Set』 and the Z-220 series has to be connected to the D-2000 via 『Optical D Slave Cable』 .
- Select adequate diffuser panel among 『External Auto Compatible』 『-0.5/White』 , 『-0.5/Blue』 , 『-1.5/White』 and 『-1.5/Blue』 according to desired shadow effect or color tone.
- Standard position of 『EV Control Switch』 or flash output balance between two strobes may vary depending on camera, shooting condition, camera parameters (such as aperture setting, distance to subject etc.)
- Attach 『Slave D Holder Unit』 to the diffuser panel which is not set to D-2000 so that the diffuser panel can be easily replaced underwater.
- Photo data/Subject
- Camera setting : f5.6 at 1/250, ISO64, Zoom 12.3mm, with Macro Mode ON
- Subject : Spotted frogfish (Length 10cm approx.) Distance to subject : 7cm approx. Location: Fukuura, Photo by R. Hattori



【D-2000 flashes less stronger】

Set D-2000 to "S-TTL" Auto
EV Control Switch : B
(select position at correct exposure)
Attach 『-1.5 Diffuser』



Set Z-220 to TTL Auto



INON

- Exclusively designed for a digital camera of 28mm wide lens.
- No vignetting underwater at wide end.
(*no other lens attached)
- Dual use underwater/land Wide Conversion Lens of Maximum view angle 100° (u/w), 179° (land), x0.63.
- Maximum view angle 150.8° when attaching optional [Dome Lens Unit for UWL-100].
- Minimum focal length 0cm "at" lens surface.
- Instant attachment system with bayonet "28 AD Mount Base".
(*"28 AD Mount Base" is exclusively for UWL-100 28AD)
- Compact size for easy handling underwater
outer diameter: 87.4mm, height: 43.2mm, weight: 370g
(*excluding optional lens hood)
- Compatible camera/housing : Canon S80 / WP-DC1,
Canon S70,S60 / WP-DC40, Olympus C7070WZ / PT-027,
Olympus C5060WZ / PT-027/020



■ Comparison of coverage

Distance to subject : 3cm (*all images)

(Camera : Canon S60 / 28mm)

Camera setting : f/2.8 at 1/100, ISO100

D-2000 x 2

Location : Osezaki

Photo by F.Torii



without attachment lens
at wide end (view angle 77.7°)



UWL-100 28AD (view angle :100 °)



Dome Lens Unit for UWL-100

(view angle : 150.8°)



UWL-100 28AD

※Vignetting on corners cropped

By using UWL-100 28AD, or UWL-100 28AD + Dome Unit Lens for UWL-100, wider angle of view can be obtained without losing image quality since distance to subject can remain close to the subject.

- Wider lens enables you to shoot
 - wider underwater landscape
 - group photo with more divers in clear image
 - bigger subject like manta in single image
 - bigger subject in clear image for closer shooting distance

Optional Accessory



~ Key component for Canon WP-DC1/DC40 to attach UWL-100 28AD ~

- 28AD Mount Base · DC1
- 28AD Mount Base · DC40

『28AD Mount Base』 is key component to attach 『UWL-100 28AD』 to 『Canon water-proof case WP-DC1』 or 『Canon water-proof case WP-DC40』 . The 『28AD Mount Base』 employs 28AD Mount (※ 1) of bayonet attachment system which helps to easily attach/remove 『UWL-100 28AD』 underwater. "28AD Mount Base" is firmly attached to housing not only with tripod screw but also crimping around housing lens port to reliably hold attachment lens / strobe. The 『28AD Mount Base』 can have existing 『INON Grip Base DII/DIII with Rubber Grip D』 using two screws. This helps to hold the housing in case of losing screws without moving the housing on the Grip Base DII/DIII. 『Optical D Cable/Cap W23 Set』 enables 『Canon WP-DC1』 to use "S-TTL" auto strobe D-2000 series for full automatic strobe shooting.



~ Reduce flare/ghost and protect lens surface ~

- Lens Hood for UWL-100 28AD

The hood blocks unnecessary ambient light like in back-lit condition to prevent ghost/flare and also protect the lens surface from damage.
 ※ Not usable together with 『Dome Lens Unit for UWL-100』

- Outer diameter/Length/Weight : φ 114mm / 70.6mm / 464 g (land) / 230 g (u/w)



~ Key Component for Olympus PT-027/020 to attach UWL-100 28AD ~

- 28AD Port · PT-027/020

Key component for 『Olympus PT-027 /PT-020』 to be replaced with genuine lens port to attach 『UWL-100 28AD』 . The 『28AD Port』 employs 28AD Mount (※ 1) of bayonet attachment system which helps to easily attach/remove 『UWL-100 28AD』 underwater. "28AD Port" is firmly attached to housing not only at housing port but also jointing with tripod screw to reliably hold attachment lens / strobe. The 『28AD Port』 can have existing 『INON Grip Base DII/DIII with Rubber Grip D』 using two screws. This helps to hold the housing in case of losing screws without moving the housing on the Grip Base DII/DIII. 『Optical D Cable/Cap W9 Set』 enables 『Olympus PT027/020』 to use "S-TTL" auto strobe D-2000 series for full automatic strobe shooting.



~ Adapter to attach UCL-165AD on 28AD Mount ~

- AD Mount Converter for UCL-165AD

The converter is used to attach 『UCL-165AD Close-up Lens』 on 『28AD Mount Base』 / 『28AD Port』 for Macro shot.

※ Vignetting at zoom/wide end. Zoom towards to telephoto side.



~ Widen view angle underwater to 150° ~

- Dome Lens Unit for UWL-100
- Dome Spacer for UWL-100 28AD

『Dome Lens Unit for UWL-100』 is attached on 『UWL-100 28AD』 and enlarge maximum view angle (u/w) to 150.8° (*100° without Dome Lens Unit for UWL-100). The wider view angle helps to shoot large landscape and also helps to shoot clearer image in poor visibility.

『Dome Spacer for UWL-100 28AD』 is necessary to attach 『Dome Unit for UWL-100』 on to 『UWL-100 28AD』

※ Slight vignetting on corners when using Dome Lens Unit. Crop vignetting after taking image.

※ Note that the combined weight of UWL-100 28AD and Dome Lens Unit gets very heavy.

- Outer diameter/Length/Weight (includes UWL-100 28AD): 129.6mm / 71.1mm / 955g (land)/480g (u/w)



- AD Lens Holder

Attaches on Grip Base DII/DIII or INON Arm System to hold 『UWL-100 28AD』 to help lens handling underwater.

AD Lens Holder is designed not only for AD Mount Lens but also for 28AD Mount Lens.



- UWL-100 Neoprene Carry Pouch

Made from neoprene to protect lens from accidental damage during transportation.

UWL-100 28AD Features

- Mount : 28AD Mount (bayonet system)※ 1)

※ 1 28AD Mount is exclusively designed for 『UWL-100 28AD』 . 『UWL-100 28AD』 can be physically attached to existing INON AD Mount Base, but the performance will be limited since optical design is different. Existing AD Mount series Attachment Lens can not be physically attached on 28AD Mount.

※ Only 『UCL-165AD Close-up Lens』 can be attached to 28AD Mount Base by using 『AD Mount Converter for UCL-165AD』 with functional limitation.

- Magnification : x0.63

- Lens construction : 4groups 4 elements

- Maximum view angle : 100.0° (u/w), 179.0° (land)

※ 2 Slightly vignetting on corners when using on land. Crop after taking image. With Olympus 『C-7070WideZoom』 / 『C-5060WideZoom』, slightly vignetting on corners underwater. Crop after taking image.
 (*The two cameras have 27mm master lens)

- Maximum view angle with Dome Lens Unit : 150.8° (u/w)

- Outer diameter / Length : φ 87.4 x 43.2mm

- Weight : 370g (land), 190g (u/w)

- Material : Corrosion-resistant aluminum alloy /Rigid black alumite

- Grass / Surface finishing : Optical Grass / Coating

- Depth rating : 60m

Housing	Camera	Focus Range				Vignetting [※ 5]				
		without UWL-100 28AD (wide end) [※ 3]		with UWL-100 28AD (wide end) [※ 4]		UWL-100 28AD +Dome Lens Unit (wide end) [※ 4]		underwater (wide end)	land (wide end)	
		Normal Mode	Macro Mode	Normal Mode	Macro Mode	Normal Mode	Macro Mode	UWL-100 28AD	UWL-100 28AD +DomeLensUnit	UWL-100 28AD
WP-DC1 [※ 5]	S80	∞ ~ 44cm	44cm ~ 4cm	∞ ~ 19.9cm	19.9cm ~ 0cm	∞ ~ 47.6cm	47.6cm ~ 0cm	No Vignetting	[※ 6]	[※ 6]
WP-DC40 [※ 5]	S70/S60	∞ ~ 44cm	44cm ~ 4cm	∞ ~ 19.9cm	19.9cm ~ 0cm	∞ ~ 47.6cm	47.6cm ~ 0cm	No Vignetting	[※ 6]	[※ 6]
PT-027 [※ 5]	C-7070WZ	∞ ~ 80cm	80cm ~ 20cm	∞ ~ 38.9cm	38.9 ~ 7.2cm	---	∞ ~ 4.9cm	[※ 6]	[※ 6]	[※ 6]
	C-5060WZ	∞ ~ 80cm	80cm ~ 20cm	∞ ~ 38.9cm	38.9 ~ 7.2cm	---	∞ ~ 4.9cm	[※ 6]	[※ 6]	[※ 6]
PT-020 [※ 5]	C-5060WZ	∞ ~ 80cm	80cm ~ 20cm	∞ ~ 38.9cm	38.9 ~ 7.2cm	---	∞ ~ 4.9cm	[※ 6]	[※ 6]	[※ 6]

※ 3 Actual distance on land (= visual distance underwater)

※ 4 Actual distance underwater

※ 5 Depending on housing, view angle/vignetting may vary even though using same camera.

※ 6 Slightly vignetting on corners at wide side. Crop vignetting after taking image.



Right :UFL-165AD
Left :UWL-105AD
Center:UCL-165AD

Underwater fish-eye is released! Now INON offers full range of lightweight compact attachment lens for underwater photographers as: **AD Mount Series Attachment Lens**

Fully support 165° Fish-eye ~ Ultra macro

Underwater Fish-eye Conversion Lens

■ INON UFL-165AD

- Maximum angle of view underwater is 165.5° . Closest focusing distance is 0cm.
UFL-165AD allows you to shoot dynamic scenery or wide macro photo with greater depth of field or with vibrant perspective.
- Innovative compact size as attachment fish-eye converter.
As of other AD Mount Series Lens, UFL-165AD is equipped with bayonet system .
This bayonet system allows you to easily replace attachment lens underwater.

Wide Conversion Lens

■ INON UWL-105AD

- The amphibious wide conversion lens, UWL-105AD, gives 105.6° degree of maximum angle of view underwater for wide shot and 179° in land for fish-eye shot, yet its smaller size comparing with UFL-165AD.
- UWL-105AD enables to make full use of Wide Conversion Lens characteristics for Wide Macro shot regardless of being underwater or in land.

Close-up Lens

■ INON UCL-165AD

- Close-up lens is designed to be closer focal length for macro/close-up shot.
INON UCL-165AD offers compact body, easy handling and full compatibility with zooming range. You can never have vignetting even at wide side.
- UCL-165AD can be jointed to another UCL-165AD for higher magnification.
You can create image composition as you like depending on subject size or distance to subject.
※ Other AD Mount Series Lens can not be attached to UCL-165AD.
Vignetting at wide side with more than two UCL-165AD jointing.

AD Mount Base is necessary for attaching AD Mount Series Attachment Lens. AD Mount Base is uniquely designed for each manufacturer's housing. Please refer reverse side for detail.



Compatible housing :

- | | |
|-----------------|---|
| Olympus | PT -031, PT-030, PT-029, PT-026, PT-024, PT-016, PT-014, PT-012 |
| Canon | WP-DC80, WP-DC70, WP-DC50, WP-DC30, WP-DC900, WP-DC800, WP-DC700, WP-DC500, WP-DC300, WP-DC200s, WP-DC200, WP-DC100 |
| Nikon | WP-CP4, WP-CP2, WP-CP1 |
| Fuji Photo Film | WP-FXF10, WP-FX701 |
| Sony | MPK-NA, MPK-W A, MPK-PHB |

Accessories

A Multifunction Base not only for AD Mount Series Lens but also for external strobe installation

AD Mount Base

- AD Mount Base·PT-031
- AD Mount Base·PT-030
- AD Mount Base·PT-029
- AD Mount Base·PT-026
- AD Mount Base·PT-024
- AD Mount Base·PT-016
- AD Mount Base·PT-014
- AD Mount Base·PT-012
- AD Mount Base·PT-009
- AD Mount Base·DC80/70
- AD Mount Base·DC900/50
- AD Mount Base·DC800
- AD Mount Base·DC700/30
- AD Mount Base·DC300
- AD Mount Base·DC200/200S
- AD Mount Base·DC100/500
- AD Mount Base·CP4/2
- AD Mount Base·CP1
- AD Mount Base·FXF10
- AD Mount Base·FX701
- AD Mount Base·NA
- AD Mount Base·WA
- AD Mount Base·PHB

(※)

AD Mount Base is multifunctional base for simple and secure installation of accessories on compact digital camera, and main accessory for "Underwater Photography System". AD Mount Base is fixed to housing at its lens port and tripod tap hole. So accessories can be added on without overburden.

※ INON attachment lens is not compatible with PT-009. With attachment lens, there is vignetting on every image corners at wide end.

Installation of attachment lens

AD Mount Base employs bayonet system for its innovative "INON AD Mount". Underwater fish-eye conversion lens "UFL-165AD", wide conversion lens "UWL-105AD" or close-up lens "UCL-165AD" is easily attached and detached. Needless to say, there is no affection on image with attachment lens off.

External strobe unit installation

AD Mount Base is equipped with diffuser panel on which "Optical D Cable Cap/ Set" can be directly mounted and enables to link with INON D-2000 series. Also "Grip Base DII with Rubber Grip D" can be directly mounted on AD Mount Base, which gives you easy and secure external strobe installation.



AD Mount Base · DC300



Optical D Cable/Cap W3 Set



Grip Base DII with Rubber Grip D

"Stress-free" lens handling underwater

AD Lens Holder

AD Lens Holder is to be attached on Grip Base DII or Grip Base DIII for carrying maximum two of AD mount series attachment lens. AD Lens Holder gives easy access to another AD lens underwater and helps to carry without possible dropping off. You can choose single or double carriage configuration at installation the accessory.

※ Maximum number of AD Lens Holder

Grip Base DII/DIII : 1 (single carriage configuration only), Arm SS : 1, Arm S : 1, Arm M : 2, Arm L : 3



※ AD Lens Holder on Arm S
Arm S is not included.



※ AD Lens Holder attached on Grip Base DII with Rubber Grip D
Only single configuration is available.

UFL-165AD/UWL-105AD Specifications/Compatibility

Housing	Camera	Focus Range						Vignetting [(10)]		
		without attachment lens(wide end) [(8)]		with UWL-105AD(wide end) [(8)]		with UFL-165AD(wide end) [(9)]		underwater(wide end)		air(wide end)
		Normal mode	Macro mode	Normal mode	Macro mode	Normal mode	Macro mode	UWL-105AD	UFL-165AD	UWL-105AD
PT-031 [(10)]	SP-700	∞ ~ 30cm	∞ ~ 10cm	∞ ~ 5.6cm	∞ ~ 0.4cm	∞ ~ 0.7cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
PT-030 [(10)]	SP-350	∞ ~ 50cm	50cm ~ 20cm	∞ ~ 10.8cm	10.8cm ~ 3.0cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
PT-029 [(10)]	μ -600	∞ ~ 50cm	∞ ~ 20cm	∞ ~ 10.8cm	∞ ~ 3.0cm	∞ ~ 5.1cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
PT-026 [(10)]	μ -40	∞ ~ 50cm	∞ ~ 20cm	∞ ~ 10.8cm	∞ ~ 3.0cm	∞ ~ 5.1cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
PT-024 [(10)]	X-3	∞ ~ 50cm	50cm ~ 20cm	∞ ~ 10.8cm	10.8cm ~ 3.0cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
PT-016 [(10)]	μ -20, μ -10	∞ ~ 50cm	∞ ~ 20cm	∞ ~ 10.8cm	∞ ~ 3.0cm	∞ ~ 5.1cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
PT-014 [(10)]	X-2	∞ ~ 50cm	50cm ~ 20cm	∞ ~ 10.8cm	10.8cm ~ 3.0cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
	X-1	∞ ~ 50cm	50cm ~ 20cm	∞ ~ 10.8cm	10.8cm ~ 3.0cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
PT-012 [(10)]	C-402	∞ ~ 80cm	80cm ~ 10cm	∞ ~ 18.9cm	18.9cm ~ 0.4cm	∞ ~ 11.7cm	11.7cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC80 [(10)]	IXY D700	∞ ~ 50cm	50cm ~ 5cm	∞ ~ 10.8cm	10.8cm ~ 0cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC70 [(10)]	IXY D600	∞ ~ 50cm	50cm ~ 5cm	∞ ~ 10.8cm	10.8cm ~ 0cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC50 [(10)]	A95	∞ ~ 45cm	45cm ~ 5cm	∞ ~ 9.7cm	9.7cm ~ 0cm	∞ ~ 4.0cm	4.0cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC30 [(10)]	A85,A75	∞ ~ 46cm	46cm ~ 5cm	∞ ~ 9.9cm	9.9cm ~ 0cm	∞ ~ 4.3cm	4.3cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC900 [(10)]	A80	∞ ~ 45cm	45cm ~ 5cm	∞ ~ 9.7cm	9.7cm ~ 0cm	∞ ~ 4.0cm	4.0cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC800 [(10)]	IXY D500,D450,D400	∞ ~ 46cm	46cm ~ 5cm	∞ ~ 9.9cm	9.9cm ~ 0cm	∞ ~ 4.3cm	4.3cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC700 [(10)]	A70,A60	∞ ~ 46cm	46cm ~ 5cm	∞ ~ 9.9cm	9.9cm ~ 0cm	∞ ~ 4.3cm	4.3cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC500 [(10)]	IXY D300a	∞ ~ 76cm	76cm ~ 16cm	∞ ~ 17.6cm	17.6cm ~ 2.0cm	∞ ~ 10.6cm	10.6cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC300 [(10)]	S50,S45	∞ ~ 50cm	50cm ~ 10cm	∞ ~ 10.8cm	10.8cm ~ 0.4cm	∞ ~ 5.1cm	5.1cm ~ 0cm	No vignetting	No vignetting	No vignetting
	S40,S30	∞ ~ 80cm	80cm ~ 10cm	∞ ~ 18.9cm	18.9cm ~ 0.4cm	∞ ~ 11.7cm	11.7cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC200s [(10)]	A40,A30	∞ ~ 76cm	76cm ~ 16cm	∞ ~ 17.6cm	17.6cm ~ 2.0cm	∞ ~ 10.6cm	10.6cm ~ 0cm	No vignetting	No vignetting	No vignetting
	A20,A10	∞ ~ 76cm	76cm ~ 16cm	∞ ~ 17.6cm	17.6cm ~ 2.0cm	∞ ~ 10.6cm	10.6cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC200 [(10)]	A20,A10	∞ ~ 76cm	76cm ~ 16cm	∞ ~ 17.6cm	17.6cm ~ 2.0cm	∞ ~ 10.6cm	10.6cm ~ 0cm	No vignetting	No vignetting	No vignetting
DC100 [(10)]	IXY D300	∞ ~ 76cm	76cm ~ 16cm	∞ ~ 17.6cm	17.6cm ~ 2.0cm	∞ ~ 10.6cm	10.6cm ~ 0cm	No vignetting	No vignetting	No vignetting
CP4 [(10)]	E7900,E5900	∞ ~ 30cm	∞ ~ 4cm	∞ ~ 5.6cm	∞ ~ 0cm	∞ ~ 0.7cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
CP2 [(10)]	E5200,E4200	∞ ~ 30cm	∞ ~ 4cm	∞ ~ 5.6cm	∞ ~ 0cm	∞ ~ 0.7cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
CP1 [(10)]	E4100	∞ ~ 30cm	∞ ~ 4cm	∞ ~ 5.6cm	∞ ~ 0cm	∞ ~ 0.7cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
	E3200,E2200	∞ ~ 30cm	∞ ~ 4cm	∞ ~ 5.6cm	∞ ~ 0cm	∞ ~ 0.7cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
FXF10 [(10)]	F11	∞ ~ 60cm	80cm ~ 5cm	∞ ~ 13.5cm	18.9cm ~ 0cm	∞ ~ 7.3cm	11.7cm ~ 0cm	No vignetting	No vignetting	No vignetting
	F10	∞ ~ 60cm	80cm ~ 7.5cm	∞ ~ 13.5cm	18.9cm ~ 0cm	∞ ~ 7.3cm	11.7cm ~ 0cm	No vignetting	No vignetting	No vignetting
FX701 [(10)]	F810,F710	∞ ~ 60cm	80cm ~ 7.5cm	∞ ~ 13.5cm	18.9cm ~ 0cm	∞ ~ 7.3cm	11.7cm ~ 0cm	WIDEmode:No vignetting	WIDEmode:No vignetting	WIDEmode:No vignetting
NA [(10)]	N1	∞ ~ 50cm	∞ ~ 6cm	∞ ~ 10.8cm	∞ ~ 0cm	∞ ~ 5.1cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
WA [(10)]	W7,W5,W1	∞ ~ 50cm	∞ ~ 6cm	∞ ~ 10.8cm	∞ ~ 0cm	∞ ~ 5.1cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
PHB [(10)]	P150	∞ ~ 50cm	∞ ~ 6cm	∞ ~ 10.8cm	∞ ~ 0cm	∞ ~ 5.1cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting
	P100	∞ ~ 60cm	∞ ~ 6cm	∞ ~ 13.5cm	∞ ~ 0cm	∞ ~ 7.3cm	∞ ~ 0cm	No vignetting	No vignetting	No vignetting

AD Mount Series Lens Specification ①

Lens Type	Close-up Lens	Wide Conversion Lens	Underwater Fish-eye Conversion Lens
Model	UCL-165AD	UWL-105AD	UFL-165AD
Outer diameter/ length	φ 64.5mm / 27.7mm	φ 78mm / 49mm	φ 114mm / 86.5mm
Weight (land / underwater) [2]	70g / 35g approx.	276g / 142g approx.	440g / 85g approx.
Lens construction	2 groups 2 elements	4 groups 4 elements	4 groups 4 elements
Focal Length (u/w / land)	165mm/135.4mm	∞ / ∞ (afocal system)	∞ / ∞ (underwater afocal system)
Magnification [3]	----	0.51	0.405
Maximum Incident View Angle [1]	----	105.6° (underwater) / 179° (air)	165.5° (underwater)
Material / Surface	Corrosion resistant aluminum alloy/ Rigid black alumite	Corrosion resistant aluminum alloy/ Rigid black alumite	Corrosion resistant aluminum alloy/ Rigid black alumite
Lens material / Coating	Optical glass / inner coating	Optical glass / both side coating	Optical glass / both side coated Optical plastic/Outer hard coating
Mount System	INON AD Mount	INON AD Mount	INON AD Mount
Practical Depth Rating	60m	60m	60m

[1] Price and specification is subject to change without prior notice.

[2] With lens hood

[3] UFL-165AD/UWL-105AD performance itself (telescopic magnification: ν).

[4] Slightly vignetting in image corners. Slightly zoom to telephoto side or crop the image.

[5] Extremely minute vignetting part in one of image corners at wide end when using "UFL-165AD" / "UWL-105AD" underwater.

[6] Extremely minute vignetting part in one of two of image corners at wide end when using "UFL-105AD" in air.

[7] Vignetting possibility to be examined.

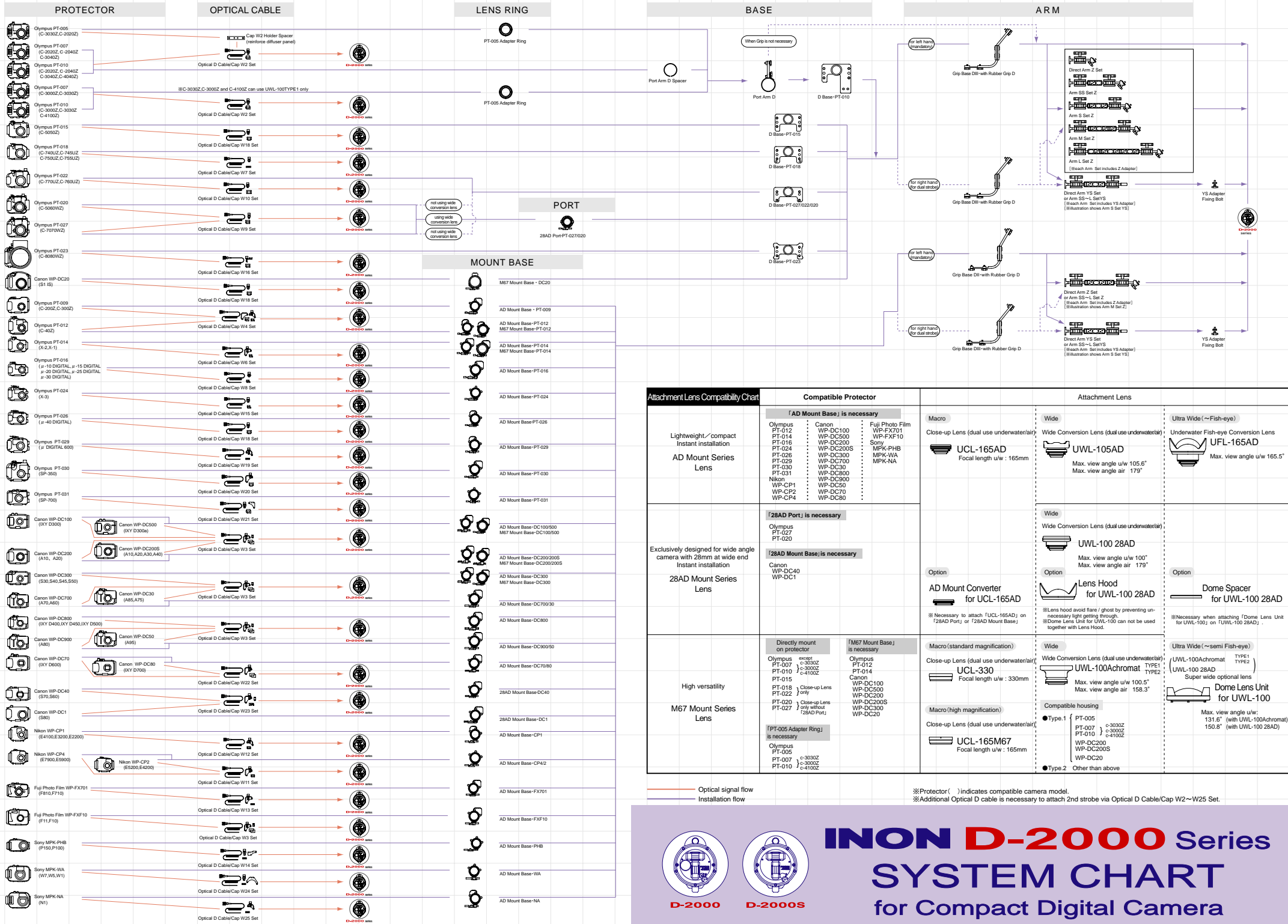
[8] Actual distance in land (=visual measurement underwater). For actual distance underwater, multiply 1.33 by actual distance land.

[9] Actual distance underwater. For visual measurement, divide by 1.33.

[10] View of angle and vignetting may vary depending on a housing to be used, even with same camera.

[11] When using "UFL-165AD" at wide side with open aperture, light amount at circumference part may be slightly short. This symptom can be eased by closing aperture.

[12] When using S50/S45/S40/S30 + WP-DC300. Actual view angle may vary depending on camera/housing.



Attachment Lens Compatibility Chart	Compatible Protector		Attachment Lens		
	[AD Mount Base] is necessary		Macro	Wide	Ultra Wide (~Fish-eye)
Lightweight/compact Instant installation AD Mount Series Lenses	Olympus PT-012 PT-014 PT-016 PT-024 PT-026 PT-028 PT-029 PT-030 PT-031 Nikon WP-CP1 WP-CP4	Canon WP-DC100 WP-DC500 WP-DC200S WP-DC300 WP-DC30 WP-DC800 WP-DC900 WP-DC50 WP-DC70 WP-DC80	Macro Close-up Lens (dual use underwater/air) UCL-165AD Focal length u/w : 165mm	Wide Wide Conversion Lens (dual use underwater/air) UWL-105AD Max. view angle u/w 105.6° Max. view angle air 179°	Ultra Wide (~Fish-eye) Underwater Fish-eye Conversion Lenses UFL-165AD Max. view angle u/w 165.5°
	Exclusively designed for wide angle camera with 28mm at wide end Instant installation 28AD Mount Series Lenses	Olympus PT-027 PT-020	[28AD Port] is necessary Canon WP-DC40 WP-DC1	Option AD Mount Converter for UCL-165AD	Wide Wide Conversion Lens (dual use underwater/air) UWL-100 28AD Max. view angle u/w 100° Max. view angle air 179°
High versatility M67 Mount Series Lenses	Olympus PT-007 PT-010 PT-015 PT-018 PT-022 PT-020 PT-027	[M67 Mount Base] is necessary Olympus PT-012 PT-014 PT-016 Canon WP-DC100 WP-DC500 WP-DC200S WP-DC200 WP-DC200S WP-DC300 WP-DC20	Macro (standard magnification) Close-up Lens (dual use underwater/air) UCL-330 Focal length u/w : 330mm	Wide Wide Conversion Lens (dual use underwater/air) UWL-100Achromat TYPE1 UWL-100 28AD Max. view angle u/w 100.5° Max. view angle air 158.3°	Ultra Wide (~semi Fish-eye) UWL-100Achromat TYPE1 UWL-100 28AD Super wide optional lens Dome Lens Unit for UWL-100 Max. view angle u/w : 131.6° (with UWL-100Achromat) 150.8° (with UWL-100 28AD)
	Nikon WP-CP1 WP-CP2	[PT-005 Adapter Ring] is necessary Olympus PT-005 PT-007 PT-010	Macro (high magnification) Close-up Lens (dual use underwater/air) UCL-165M67 Focal length u/w : 165mm	Compatible housing ●Type.1 PT-005 PT-007 PT-010 ●Type.2 Other than above	

※Protector () indicates compatible camera model.
※Additional Optical D cable is necessary to attach 2nd strobe via Optical D Cable/Cap W2~W25 Set.