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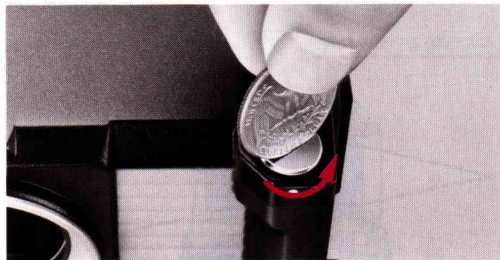
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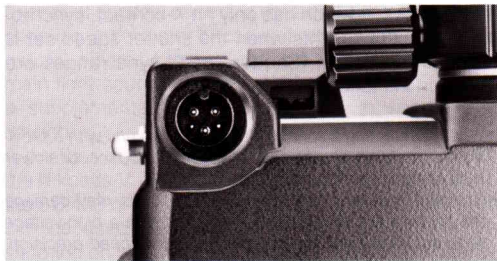
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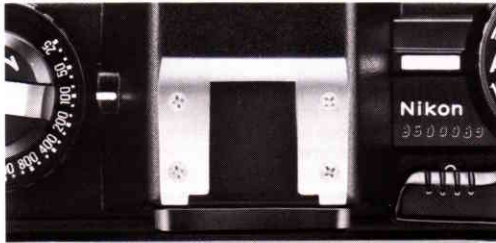


## Flash Socket

The flash socket is located in the camera's baseplate just below the anatomical grip. Use a coin to unscrew the flash socket cover ④. Like the battery chamber cover, it has an O-ring to make it watertight. Once the cover is removed, electrical connection between the camera and the Nikonos Speedlight SB-103, SB-102 or SB-101 can be made with the coiled sync cord. Since the Nikonos-V's flash socket provides X-sync only, flash units using flashbulbs **cannot** be used. An optional sync cord allows other Nikon speedlights to be used with the Nikonos-V on land.



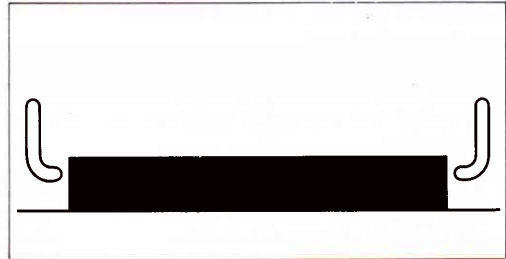
- ***After each underwater shooting session, examine the flash socket cover's O-ring and apply lubrication if necessary. See "PREPARATION" on page 7 for more information.***
- ***Whenever a sync cord is not being used, be sure the flash socket cover is screwed tightly into place; if water seeps past, it will be almost impossible to remove. If water does enter the flash socket, contact an authorized Nikon dealer or service center immediately or corrosion may damage the electrical contacts and circuitry.***



## Accessory Shoe 13

Built into the top of the viewfinder, the Nikonos-V's accessory shoe accepts the following accessories:

1. Four optical viewfinders: DF-11 for UW-Nikkor 15mm f/2.8N; DF-12 for the UW-Nikkor 20mm f/2.8 (and for UW-Nikkor 28mm f/3.5 via mounting mask); DF-10 for Nikkor 80mm f/4; and "Optical Viewfinder for UW-Nikkor 28mm f/3.5" (also for W-Nikkor 35mm f/2.5 via mounting mask).
2. Two plastic frame finders—one for the UW-Nikkor 28mm f/3.5, the other for both W-Nikkor 35mm f/2.5 and Nikkor 80mm f/4.
3. Sensor Unit SU-101 for Nikonos Speedlight SB-102 and SB-101 or on-land use with dedicated direct-mounting Nikon Speedlights.



## Viewfinder Ready-Light

The Nikonos-V's thunderbolt-shaped ready-light is located in the lower righthand corner of the viewfinder next to the LED underexposure warning arrow.

When the SB-103 or SB-102 Speedlight is being used and both the speedlight and the camera's exposure meter are turned on, the ready-light lights when the speedlight has recycled and goes out when the shutter is released. This enables you to keep your eye to the viewfinder at all times. As a warning, the ready-light blinks when the flash output is insufficient, the camera's ASA/ISO film speed dial is misset, or the shutter speed/mode selector dial is set to M90 (1/90sec.) or B (Bulb) for TTL flash operation.

# FLASH PHOTOGRAPHY—continued

## Camera meter, shutter speed, and ready-light

The relationship between the recycling of the flash unit, the camera's shutter speed, and the ready-light (if the flash unit provides a ready-light indication) is shown below.

- If the shutter speed/mode selector dial is set at "A" or at any shutter speed setting from 1/1000 to 1/125 sec., the shutter speed automatically switches to 1/90 sec. when the speed-light is turned on, regardless of whether or not it has recycled. When the shutter speed/mode selector dial is set at 1/60 or 1/30 sec., the shutter will be released at the speed selected.

- The Nikonos-V's automatic TTL flash exposure control is not operable when the shutter speed/mode selector dial is set at M90 (1/90 sec.) or B (Bulb).
- If the ready-light does not light after a shot, check the battery power in the following manner.
  1. If the flash unit's ready-light does not light, the flash unit's batteries are exhausted and must be replaced with a fresh set.
  2. If the camera's meter is on and the flash unit's ready-light lights but the viewfinder ready-light does not light or blink, the camera's battery (or batteries) is (are) exhausted and must be replaced with a fresh one (or set).

Shutter speed/mode selector dial	Meter on		Meter off	
	Viewfinder ready-light	Shutter speed	Viewfinder ready-light	Shutter speed
A (Auto)*	lights	1/90 sec.	doesn't light	—
1/1000 to 1/125 sec.	lights	1/90 sec.	doesn't light	—
1/60 to 1/30 sec.	lights	as set	doesn't light	—
M90 or B	→	→	lights	as set

\* Select and set a useable aperture; aperture-priority automatic exposure is not operable when using a speedlight. However, the shutter speed you selected and shutter speed selected by the camera's microcomputer light are indicated by the viewfinder LEDs in the same manner as when shooting using aperture-priority automatic exposure.

# Nikonos-V/Speedlight Combination Chart

Situation	Speedlight	Connection	Ready-light operates	Flash output control
Underwater (also usable on land)	SB-103	Direct	Yes	TTL/manual
	SB-102	Direct	Yes	TTL/auto/manual
	SB-101	Direct	Yes	Auto/manual
On land	SB-17/SB-16A/SB-12	Via V-Type Sync Cord + AS-6	Yes	Auto/manual*
	SB-18/SB-16B/SB-15	Via V-Type Sync Cord	Yes	TTL/auto/manual*
	SB-19/SB-E	Via V-Type Sync Cord	Yes	Auto
	SB-11/SB-14	Via V-Type Sync Cord + SC-13 with SU-2	Yes	Auto/manual
		Via V-Type Sync Cord + SC-23	Yes	TTL/manual*

- Except with the SB-12, TTL multiple flash photography is possible with the optional TTL Multi-Flash Sync Cord SC-19 and/or SC-18. For TTL multiple flash photography, SB-17 and SB-16A should be used as slave flash units. For details, see instruction manual of accessories for TTL multiple flash photography.
- When connecting a Nikon speedlight to the Nikonos-V with the Nikonos IV-A's Flash Unit Adapter and the SC-10 Sync Cord for use on land, reset the shutter speed/mode selector dial to 1/60, 1/30 or M90 (1/90 sec.).

# FLASH PHOTOGRAPHY—continued

## Daylight fill-in flash shooting

When shooting in daylight, a backlit subject may come out almost as a silhouette if the background is correctly exposed. If, on the other hand, exposure compensation is made to correctly expose the subject, the background may be washed out. To fill in the shadows and balance the illumination levels of the subject and the background in daylight shooting, use the SB-103 or SB-102 Speedlight.

When the speedlight is turned on, the shutter speed automatically switches to 1/90sec. Point the camera at the main subject and gently depress the shutter release button halfway to activate the camera's exposure meter. When the meter is on and the flash has recycled, the viewfinder ready-light will light and one of the shutter speed LED indicators will blink. To obtain the correct exposure, adjust the aperture to numerically larger f-numbers until both the 1/125sec. and 1/60sec. shutter speed LEDs begin blinking, or until either the 1/60sec. or 1/30sec. LED indicator blinks. Check that the viewfinder ready-light is lighted, then depress the shutter release button completely.

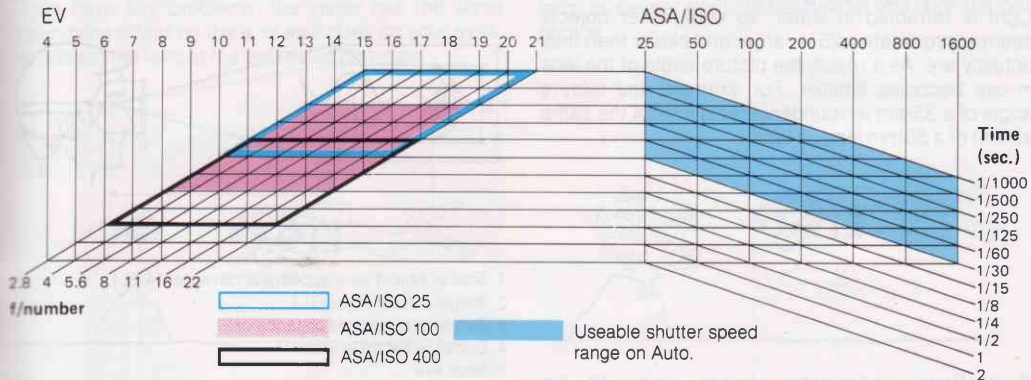
For best results, follow this procedure whenever any of the shutter speed LEDs from "125" to "1000" blinks during daylight fill-in flash shooting unless you intentionally want to over- or underexpose a shot.

For more information, refer to the speedlight instruction manual.

## EV Chart

At ASA/ISO 100, the exposure range of the Nikonos-V is from EV 8 (1/30sec. at f/2.8) to EV 19 (1/1000sec. at f/22). The ranges at various film speeds are shown in the chart. For example, the range at ASA/ISO 100 is in pink, the range at ASA/ISO 25 is indicated by blue lines, and the range at ASA/ISO 400 is indicated

by black lines. The exposure value (EV) is a number representing the various combinations of apertures and shutter speeds that will provide the same exposure. For instance, EV 10 represents 1/30sec. at f/5.6, but it can also mean 1/60sec. at f/4 or 1/125sec. at f/2.8.



# TIPS ON UNDERWATER PHOTOGRAPHY

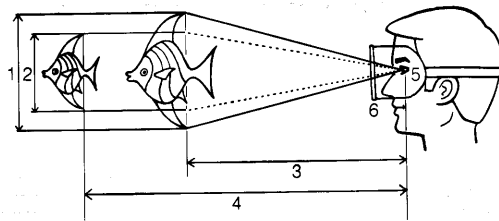
The results you will obtain when shooting underwater depend upon the transparency of the water, the shooting depth, whether or not objects are floating near your subject, the condition of the light, and several other factors. To take good underwater photos, you must have a basic knowledge of underwater photography.

## Water's magnifying effects

Light is refracted in water, so underwater objects seem approximately 25% larger and closer than they actually are. As a result, the picture angle of the lens in use becomes smaller. For example, the picture angle of a 35mm lens underwater is almost the same as that of a 50mm lens on land.

## Lens focal length and picture angle

Focal length (mm)	On land	Underwater
	Picture angle	Picture angle
15	—	94°
20	—	78°
28	74°	59°
35	62°	46°30'
80	30°20'	22°45'



- 1 Size of object as it appears underwater ( $4/3L$ )
- 2 Actual size of object ( $L$ )
- 3 Actual or measured distance ( $l$ )
- 4 Distance set on lens ( $3/4l$ )
- 5 Your eye
- 6 Underwater mask

Illustrations, underwater photos, and editorial supervision supplied by Akira Tateishi, Marine Art Center, Co., Ltd.

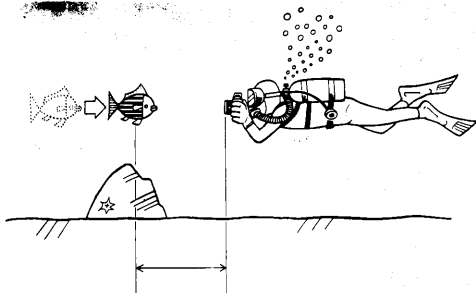


## Focusing

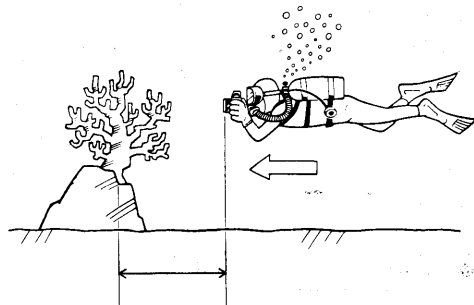
The distance scales on the interchangeable lenses for the Nikonos-V are correct for on-land use. When using these lenses underwater, therefore, you must set the distance scale to  $3/4$  of the actual or measured camera-to-subject distance. For example, if the actual or measured camera-to-subject distance is 1.33m (4.3ft), the distance scale should be set at 1m (3.3ft). If you estimate the distance underwater, though, you won't have any problems; the water has the same magnifying effect on the lens as it does on your eyes. So just set the lens at the estimated distance.

When shooting underwater, you will probably find it more convenient to keep the lens set at a specific distance and reposition yourself at that distance from the subject than to set the distance for each subject. When taking photos of fish, set the lens to a specific distance and then release the shutter when the fish swims to that distance.

For best results underwater, shoot with a wide-angle lens; its deeper depth of field will let you take sharper photos.



**Wait for the subject to move to the prefocused distance.**



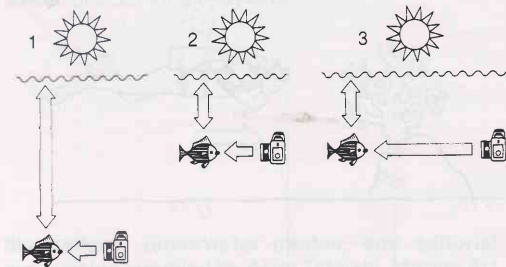
**Move to the prefocused distance.**

# TIPS ON UNDERWATER PHOTOGRAPHY—continued

## Water's effects on colors

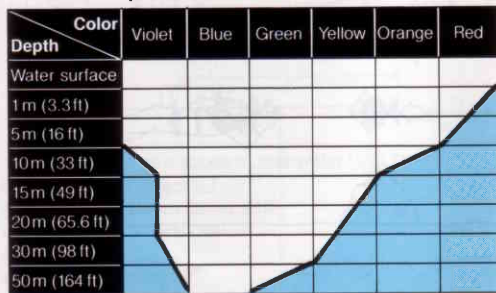
The farther you descend from the water's surface, the more the selective filtration and light absorption of the water reduce visibility. Red is the first color to be absorbed, orange and yellow follow close behind (refer to the chart).


At 10 m (33 ft), everything takes on a blue-green cast. In addition, depending upon the turbulence of the water, visibility may be reduced even further by silt and microscopic particles of plankton in suspension. Therefore, below approximately 5 m (16 ft), use a speedlight to give the subject additional illumination and to restore natural colors, especially those in the red portion of the spectrum. For more information about flash shooting, see page 50.



1. Red absorption increases at greater depths. Subject looks bluish even at short distances.
2. Red absorption decreases at shallower depths and at smaller distances.
3. Subject looks increasingly bluish at greater distances, even at shallow depths.

**Color Absorption Underwater**



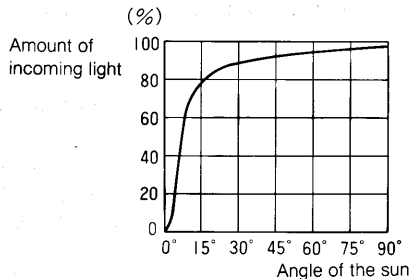
 = color is absorbed

## Shooting distance and subject contrast

The greater the camera-to-subject distance underwater, the less the subject contrast. Small particles of plankton or dirt that float in the water decrease the subject contrast to such a degree that, even under ideal conditions, it is next to impossible to take a sharp photo when the camera-to-subject distance is more than 5m (16ft). For best results, get as close to the subject as possible and use the widest angle lens you have. Be careful, too, when using a speedlight that you aren't so far from the subject that sufficient light cannot reach it.

## Shooting with sunlight

Good underwater photography requires good lighting, such as sunlight. But the amount of sunlight that enters the water depends upon the position of the sun. The maximum amount of light enters the water when the sun is directly overhead. If the angle between the sun and the water's surface is at least  $45^\circ$ , though, more than 90% of the sun's light enters the water. (The chart below shows the relationship of the angle between the sun and water and the amount of sunlight that enters the water.) For best results, pick a calm, sunny day and dive between the hours of 10:00a.m. and 2:00p.m. If there are waves and swells, or if the waves break against rocks nearby and foam, less sunlight will enter the water.



# TIPS ON UNDERWATER PHOTOGRAPHY—continued

## Camera positioning

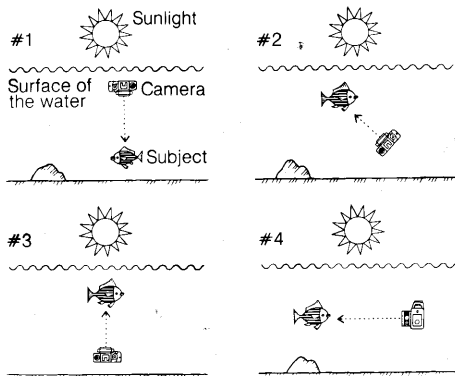
For normal shooting, hold the camera horizontally for subject lighting with good contrast (illustration #4). Whenever possible, avoid shooting straight down on the subject (illustration #1); the sunlight will be behind the camera, resulting in flat, low-contrast lighting.

As it is on land, backlighting is possible underwater. For partially backlit subjects with medium-contrast lighting, hold the camera at an angle toward the water's surface (illustration #2). For dramatic backlit scenes in which objects appear as silhouettes, point the camera directly toward the water's surface (illustration #3). If more detail in the silhouetted subject is desired, make an exposure compensation by resetting the ASA/ISO film speed dial to a lower number (this can be done underwater), by switching to the manual mode, or by using a speedlight. For example, with ASA/ISO 400 film, reset the dial to ASA/ISO 200 for a one-stop exposure increase or reset the dial to ASA/ISO 100 for a two-stop increase.

**After taking the shot, do not forget to reset the dial to its original position.**

## Best depth of water for AE shooting

If the water is very transparent, you can use the Nikonos-V in the A mode down to 20m (65.6ft), but most pictures will come out bluish because of the light absorption of the water. Diving deeper will not ensure better photographs; most subjects underwater are no more than 10m (33ft) below the water's surface. For results, dive in shallow areas and do not attempt to take pictures below a depth of 4 to 5m (13 to 16ft). If you want to shoot below this depth, use a speedlight to restore the subject's natural colors.



## Film choice

Using film with a speed of ASA/ISO 400 or higher will allow you to use faster shutter speeds, thereby minimizing the effects of camera movement as much as possible.

## When to use a speedlight

### 1) To restore natural colors to the subject

When shooting color film without a speedlight, your photos will come out bluish because of the selective filtration and light absorption of water. Using a speedlight will allow you to capture the subject in all its splendor.

### 2) To add illumination to the subject

When shooting a subject that is partially in darkness (such as the inside of an underwater cave or a face behind a diver's mask), use a speedlight to provide more illumination.

## Underwater photography and speedlight guide numbers

Because of the light absorption of water, the guide number of a speedlight is lower underwater than it is on land. Also, because the transparency of the water varies from situation to situation, it is difficult to calculate the aperture setting from the guide number. As a rule of thumb, use the following formula to calculate the aperture from the guide number when using a speedlight in fairly transparent water.

$$\frac{(1/2 \text{ to } 1/3) \text{ Guide Number}}{\text{Flash-to-subject Distance}} = f/\text{stop}$$

Poor visibility may reduce the maximum shooting distance and guide number even further. For best results, take the first shot at the recommended exposure, then take two additional shots with the lens at the next two numerically smaller f-numbers.

To compensate for light loss in the A mode, use the Sensor Unit SU-101 when using the SB-101 in the automatic mode. Even though the maximum shooting distance will be cut in half, you will still obtain the correct exposure. When shooting manually, divide the speedlight guide number by two. In the TTL mode, the SB-103 or SB-102 automatically provides the correct flash exposure.

# TIPS ON UNDERWATER PHOTOGRAPHY—continued

## Flash shooting tips

To prevent light from being scattered by suspended particles and then being reflected directly back into the lens, position the flash head as far away from the lens as possible. If necessary, remove the flash from its bracket and hold it off to the side and slightly above the subject. If sand is kicked up from the seabed (see Photo 1), wait until it settles before shooting (see Photo 2). Finally, remember that water absorbs the light from the speedlight, too.

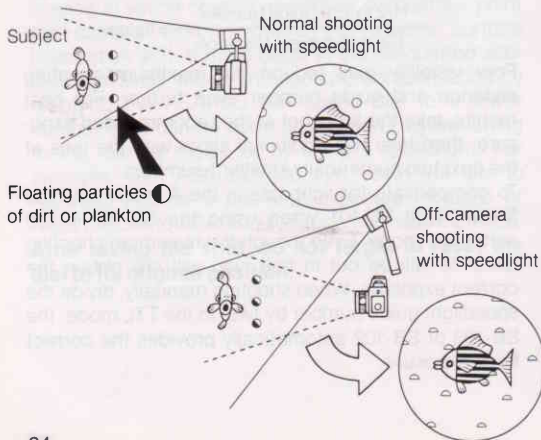


Photo 1



Photo 2

# ACCESSORIES

www.orphancameras.com

## Nikonos Speedlight SB-103

A compact version of the field-proven SB-102, this new direct-mounting unit has automatic through-the-lens (TTL) flash exposure control (with the Nikonos-V) as well as manual. Thanks to TTL automatic flash output control, the range of useable apertures widens to make photography easier than ever.

Area of coverage is that of a 28mm lens; with the Wide-Flash Adapter SW-103 (provided), area of coverage increases to that of a 15mm lens.

The SB-103 also features TTL multiple flash capability through the optional Double Flash Bracket and Double Sync Cord. Use two SB-103s or one SB-103 and one SB-102 and broaden your underwater photography capabilities.

The SB-103 couples with the Nikonos-V's viewfinder ready-light to indicate when the flash has charged and to warn if the camera's settings are outside the flash coupling range.

In addition, when the camera's shutter speed/mode selector dial is set at any setting except "M90" (1/90sec.), B (Bulb), or R (Rewind), the shutter speed automatically switches to 1/90sec. when the speedlight is turned on. (See the chart on page 54 for more information.)



SB-103

SB-102

## Nikonos SB-102

This powerful (GN 32) and versatile speedlight offers TTL (with the Nikonos-V), Auto (useable with the optional Sensor Unit SU-101) and manual flash controls.

Like the SB-103, area of coverage is that of a 28mm lens; with the Wide-Flash Adapter SW-102 (provided), area of coverage increases to that of a 15mm lens. Viewfinder indicators and shutter synchronization speed are the same as the SB-103. (See the chart on page 54 for more information.)

The SB-102 has multiple flash capability (with or without cord), through the built-in slave sensor or the optional Double Flash Bracket and Double Sync Cord, and also features a target-light for close-up shooting. The target-light, positioned in the center of the flash head, shoots a beam of light at the subject to help you aim the flash head at the subject.

## V-Type Sync Cord

One end of the cord connects to the camera's flash socket; the other has a hot shoe which attaches to the camera's accessory shoe. Thus, any electronic flash unit with a standard ISO-type mounting foot, such as Nikon Speedlights SB-18, SB-16B or SB-15, can be used with the Nikonos-V for on-land flash photography. By using TTL Remote Cord SC-23 in conjunction with a V-Type Sync Cord, a bracket-mounting type flash unit such as Nikon Speedlight SB-14 or SB-11 can be

used. TTL automatic flash exposure control is possible with these flash units, as is TTL multiple flash photography.

## IV-A-Type Sync Cord SC-10

One end of this cord connects to the camera via the flash unit adapter for the Nikonos IV-A; the other end has a hot shoe which attaches to the accessory shoe. Thus, any electronic flash unit with a standard ISO-type mounting foot, such as Nikon Speedlights SB-18, SB-16B, and SB-15, can be used with the Nikonos-V for on-land flash photography. However, automatic TTL and TTL multiple flash photography are not possible.



## Nikonos Interchangeable Lenses

### Relationship between picture angle and focal length



15mm



28mm



35mm



80mm

# ACCESSORIES — continued

## UW-Nikkor 15mm f/2.8N, UW-Nikkor 20mm f/2.8, and UW-Nikkor 28mm f/3.5

Designed exclusively for underwater use, these UW-Nikkor lenses can be used to a depth of 50mm (160ft). The optics are corrected exclusively for underwater aberrations and provide excellent underwater photographs. Also, Nikon Integrated Coating (NIC) is applied to internal air-to-glass surfaces to minimize ghost images and flare. For each lens, an optional optical viewfinder is available for quick determination of field of view.

### Main Specifications

#### UW-Nikkor 15mm f/2.8N

**Lens construction:** 12 elements in 9 groups (including watertight front cover glass)  
**Picture angle:** 94° (underwater)  
**Distance scale:** Graduated in meters and feet from 0.3m (1ft) to infinity ( $\infty$ ) with secondary scales from 0.22 to 0.25m (0.7 to 0.9ft)  
**Aperture scale:** f/2.8 to f/22  
**Attachment size:** 87mm (P = 0.75mm)  
**Dimensions:** Approx. 93mm dia x 90.6mm long (overall)  
**Weight:** Approx. 665g

#### UW-Nikkor 20mm f/2.8

**Lens construction:** 9 elements in 7 groups  
**Picture angle:** 78° (underwater)  
**Distance scale:** Graduated in meters and feet from 0.4m (1.3ft) to infinity ( $\infty$ )  
**Aperture scale:** f/2.8 to f/22  
**Attachment size:** 67mm (P = 0.75mm)  
**Dimensions:** Approx. 70mm dia. x 74mm long (overall)  
**Weight:** Approx. 350g

#### UW-Nikkor 28mm f/3.5

**Lens construction:** 6 elements in 5 groups  
**Picture angle:** 59° (underwater)  
**Distance scale:** Graduated in meters and feet from 0.6m (2ft) to infinity ( $\infty$ )  
**Aperture scale:** f/3.5 to f/22  
**Attachment size:** 58mm (P = 0.75mm)  
**Dimensions:** Approx. 62mm dia. x 43.8mm long (overall)  
**Weight:** Approx. 175g

UW-Nikkor 15mm f/2.8N mounted on  
Nikonos-V with Optical Viewfinder DF-11



UW-Nikkor 20mm f/2.8 mounted on  
Nikonos-V with Optical Viewfinder DF-12



UW-Nikkor 28mm f/3.5

## ACCESSORIES — continued

### W-Nikkor 35mm f/2.5 (Standard)

This, the standard lens for the Nikonos-V, can be used both on land and underwater to a depth of 50m (160ft).

NIC is applied to internal air-to-glass surfaces to minimize ghost images and flare and ensure high-resolution images. The optical elements are sealed with a watertight front element and the lens barrel features a special spring-loaded mount to ensure proper alignment of the lens and camera body regardless of the water pressure. The threaded lens front accepts a variety of accessories.



### Main Specifications

- Lens construction:** 7 elements in 5 groups  
(including watertight front cover glass)
- Picture angle:** 43°30' (underwater) and 62° (on land)
- Distance scale:** Graduated in meters and feet from 0.8m (2.75 ft) to infinity ( $\infty$ )
- Aperture scale:** f/2.5 to f/22
- Attachment size:** 58mm (P = 0.75 mm)
- Dimensions:** Approx. 62mm dia. x 39.5mm long (overall)
- Weight:** Approx. 160g

## Nikkor 80mm f/4

Designed for maximum performance both on land and underwater, this medium telephoto lens can go to a depth of 50m (160ft).

NIC is applied to internal air-to-glass surfaces to minimize ghost images and flare and produce high-resolution images.

In addition, a plastic frame finder (for underwater use) and optical viewfinder DF-10 (for on-land use) are available to let you quickly determine the precise field of view.

### Main Specifications

<b>Lens construction:</b>	5 elements in 5 groups (including watertight front cover glass)
<b>Picture angle:</b>	22°45' (underwater) and 30°20' (on land)
<b>Distance scale:</b>	Graduated in meters and feet from 1m (3.5ft) to infinity ( $\infty$ )
<b>Aperture scale:</b>	f/4 to f/22
<b>Attachment size:</b>	58mm (P = 0.75mm)
<b>Dimensions:</b>	Approx. 62mm dia. x 66mm long (overall)
<b>Weight:</b>	Approx. 275g



# ACCESSORIES — continued

## LW-Nikkor 28mm f/2.8

Designed exclusively for use on land, this lens is water-resistant, not waterproof, and cannot be submerged in water. Useful for regular snapshots and landscapes, this lens is ideal for shooting under harsh conditions, such as in rain or snow, or while skiing, mountain climbing, boating, etc.

All aberrations are well corrected, so pictures are sharp and have high contrast, even at full aperture. The convenient 52mm attachment size allows you to use a large variety of filters and other accessories designed for Nikkor and Nikon Series E lenses. And like those lenses, the LW-Nikkor is easy to operate.

### Main Specifications

**Lens construction:** 5 elements in 5 groups

**Picture angle:** 74° (on land)

**Distance scale:** Graduated in meters and feet from 0.5m (1.5ft) to infinity ( $\infty$ )

**Aperture scale:** f/2.8 to f/22

**Attachment size:** 52mm (P = 0.75mm)

**Dimensions:** Approx. 68.5mm dia. x 57mm long (overall)

**Weight:** Approx. 240g



## Nikonos Close-Up Outfit

Because of the incredible variety of aquatic life, half the fun of underwater photography is in taking close-ups. To simplify the process, use the Nikonos Close-Up Outfit. It consists of a single close-up attachment lens, three field frames, and a frame support bracket. The close-up lens screws into the front of either the 28mm, 35mm, or 80mm lens (not the UW-Nikkor 15mm f/2.8 or the LW-Nikkor 28mm f/2.8) to magnify the image. The three field frames indicate the area of coverage for each of the three interchangeable lenses, while the frame support bracket holds the frames at exactly the right distance from the camera for perfect focus. Just frame your subject within the field frame and take a perfect close-up.

This outfit can also be used with the Nikonos IV-A and III.



## Accessory Viewfinders

Accessory viewfinders are available for certain Nikonos lenses to help you determine the field of view rapidly.

Plastic frame finders let you frame moving subjects quickly and accurately while your eye is removed from the viewfinder.

**Optical Viewfinder DF-11:** For exclusive use with the UW-Nikkor 15mm f/2.8N.

**Optical Viewfinder DF-12:** Designed for use with the UW-Nikkor 20mm f/2.8. Can also be used with UW-Nikkor 28mm f/3.5 lens via the supplied mounting mask.

**Optical Viewfinder for UW-Nikkor 28mm f/3.5:** Designed for use with the UW-Nikkor 28mm f/3.5. Can also be used with the W-Nikkor 35mm f/2.5 lens via the supplied mounting mask.

**Optical Viewfinder DF-10:** For exclusive use on land with Nikkor 80mm f/4. Distance scale ring for parallax correction is provided.

**Plastic Frame Finder for UW-Nikkor 28mm f/3.5:** For exclusive use with the UW-Nikkor 28mm f/3.5. Mounts on the Nikonos accessory shoe.

**Plastic Frame Finder for the W-Nikkor 35mm f/2.5 and the Nikkor 80mm f/4:** For exclusive use underwater with the W-Nikkor 35mm f/2.5 and the Nikkor 80mm f/4. Mounts on the Nikonos accessory shoe.





Nikon offers a full range of accessories for both underwater and on land picture-taking with the Nikonos-V. In addition to the lenses, flash units, optical viewfinders (glass and plastic), and close-up outfit already mentioned, the following accessories are available:

### Lens Hood (also serves as a filter holder)

This combination lens hood/filter adapter for the W-Nikkor 35mm f/2.5 and the Nikkor 80mm f/4 lenses prevents stray light from entering the lens and protects the lens from damage.

The hood screws into the front of the lens; standard 52mm filters screw directly into the front of the hood.

### Plastic Lens Protector

A special plastic lens protector is available for mounting on the front of the UW-Nikkor 28mm f/3.5, W-Nikkor 35mm f/2.5, and Nikkor 80mm f/4 lenses. The resiliency of this unit effectively protects the lens against damage from bumps against solid underwater objects.

### Rubber Lens Hood

This unit is a combination lens protector and lens hood for the W-Nikkor 35mm f/2.5 lens. It slides over the front of the lens and protects it underwater.



# ACCESSORIES — [www.orphancameras.com](http://www.orphancameras.com) — continued

## Lens Cases

Three types of leatherette lens cases are available for the Nikonos-V's lenses. The Lens Case CL-51 accepts the Nikkor 80mm f/4 lens; the Lens Case CL-50A accepts either the UW-Nikkor 28mm f/3.5 or the W-Nikkor 35mm f/2.5 lens. For the LW-Nikkor 28mm f/2.8, both the Lens Case CL-30S and the Flexible Lens Pouch No. 61 are available.

## Camera Case

This special soft camera case of nylon and leatherette accepts the Nikonos-V and either the UW-Nikkor 28mm f/3.5 or the W-Nikkor 35mm f/2.5 lens with its front lens cap.

## Speedlight Case SS-101

This stylish tote bag has three cushioned compartments for the camera and all parts of the SB-103, SB-102 or SB-101.

## Close-Up Outfit Case

All items in the Nikonos Close-Up Outfit, including the field frames, fit into special contoured compartments in this rectangular zippered case.

## O-rings and Lubricant

Additional O-rings and lubricant are available to allow you to maintain the camera in perfect condition.



CL-51

CL-50A



# TIPS ON BATTERY USE

www.orphancameras.com

- Keep batteries away from infants and small children. In case a battery is accidentally swallowed, call a doctor immediately as the material inside the batteries may be fatal.
- Battery power falls off in extremely cold temperatures and this may cause the camera to cease to operate. In this situation, use new batteries and protect the camera body from the cold. Note that battery power will be recovered as soon as the temperature becomes normal.
- When not using the camera for a long period of time, take the batteries out and store them in a cool (below 20°C), dry place. Should the batteries be left in the battery chamber for a long period of time, insufficient contact may occur due to battery contamination. Thus, it is good practice to periodically clean the batteries and the contact section in the battery chamber with a soft cloth. If the battery chamber is stained by a leaking battery, remove the batteries at once and clean the chamber.
- Never mix new and old batteries or batteries of different makes.
- Always check battery power before every shooting session. It is a good idea to have spare batteries on hand during a lengthy shooting assignment.
- In normal use, a battery's lifespan is about one year. The battery packed with this camera, however, is for test purposes only so its lifespan may be shorter than usual.
- Never disassemble batteries or dispose of them by burning.

# SPECIFICATIONS [www.oplcameras.com](http://www.oplcameras.com)

**Type of camera:** Electronically controlled 35mm amphibious focal plane shutter camera

**Construction:** Body made of die-cast aluminum alloy and reinforced plastic; all joints sealed by O-ring gaskets to ensure absolute watertightness; camera able to withstand pressures up to  $6\text{kg/cm}^2$  ( $85\text{lb/in}^2$ ) at a depth of 50m (160ft)

**Useable film:** Standard 35mm cartridge-type film

**Picture format:** 24mm  $\times$  36mm (standard 35mm film format)

**Lens mount:** Nikonos bayonet mount

**Lenses:** W-Nikkor 35mm f/2.5 standard; four additional lenses from super-wideangle to medium telephoto available

**Viewfinder:** Inverted Galilean type Albada finder built into camera for use with standard 35mm lens; bright frame lines show approx. 85% field of view at infinity ( $\infty$ ); 0.55X magnification; diopter 0.9; high eyepoint allows viewing with eye 40mm away from finder; parallax correction marks provided; accessory optical viewfinders or frame finders available for various lenses

**Viewfinder display:** LED shutter speed indications; LED over- and underexposure warning arrows; thunderbolt-shaped ready-light

**Shutter:** Electronically controlled vertical-travel metal focal-plane type

**Shutter speeds:** A (AUTO): Electronically controlled stepless speeds from 1/30 to 1/1000sec.;

M (MANUAL): Quartz-controlled speeds from 1/30 to 1/1000sec.; M90 (MECHANICAL): Mechanical speed of 1/90sec.; B (BULB): Mechanical setting for long exposures; R (REWIND): Setting used when rewinding film

**Shutter release:** Button at top of anatomical grip; initial pressure on button switches on meter, meter remains on for 16sec. after finger is removed; shutter release lock incorporated

**Exposure control:** Two exposure control modes: A (automatic aperture-priority) and M (manual) modes provided; M90 (mechanical 1/90sec.) and B (Bulb) also provided

**Exposure metering:** Through-the-lens (TTL) stopped-down metering via two silicon photo diodes (SPD) with center-weighted metering pattern; one SPD used for TTL flash exposure control with SB-103, SB-102, and others

**Metering range:** EV 8 to EV 19 at ASA/ISO 100 with f/2.8 lens (from 1/30sec. at f/2.8 to 1/1000sec. at f/22)

**Film speed range:** ASA/ISO 25 to 1600

**Accessory shoe:** Provided; built into top of viewfinder

**Flash synchronization:** X-sync only via flash socket in camera's base; synchronizes at 1/90sec. or slower; with Nikonos Speedlights SB-103, SB-102 and SB-101, shutter speed automatically switches to 1/90sec. when shutter speed/mode selector dial is at "A" or at 1/125 or higher in manual mode; at 1/60sec. or slower on manual, shutter fires at speed set

**Flash ready-light:** Thunderbolt-shaped LED in viewfinder lights when SB-103, SB-102, SB-101, and others have recycled; blinks to warn of insufficient light output, improper shutter speed/mode selector dial setting, and film speed setting beyond the useable range of ASA/ISO 25 to 400 for TTL flash operation

**Film advance lever:** Wound in single stroke or series of strokes; 144° winding angle; hinged for compact storage; when shutter speed/mode selector dial is at "A," shutter releases at approx. 1/1500sec. until film frame counter reaches frame "1" for fast film loading

**Frame counter:** Additive type; advances one frame with each complete stroke of film advance lever whether film is loaded or not; resets when camera back is opened

**Film rewind:** Manual via film rewind crank after shutter speed/mode selector dial is set to "R" (Rewind); shutter release button is automatically locked

**Camera back:** Hinged type with camera back locking pin; opened and locked via camera back lock/release latch and camera back release button

**Pressure plate:** Hinged type, attached to camera body; locking catch provided

**Tripod socket:** Located at base plate of camera body; standard 1/4 inch (JIS)

**Batteries:** One 3V lithium battery (CR 1/3 type), two 1.55V silver-oxide batteries (SR-44 type) or one 1.5V alkaline-manganese battery (LR-44 type)

**Battery check:** Possible when shutter speed/mode selector dial is at any setting except M90, B, or R, and frame counter is at or beyond "1"; viewfinder LED lights to indicate proper battery installation and sufficient battery power when shutter release button is depressed; if battery power is exhausted, shutter can be released at 1/1500sec.

**Dimensions:** Approx. 146mm(W)×99mm(H)×58mm(D) (without lens)

**Weight:** Approx. 700g (without lens)

Subject to change without notice.