

***Nikon***



Nikon F3 System  
Nikon FM2/FM Systems  
Nikon FE System  
Nikon FG System  
Nikon EM System

# Nikon 35mm SLR Cameras

Nikon cameras are compact, you won't lose them in your hands. Now bring the camera to your eye and see the difference a silver-coated prism and oversized instant-return mirror can make in terms of bright, accurate focusing. Advance the film wind lever to feel the smoothness ball bearings make, especially when winding to frame #36. Now check out some other convenient features of a Nikon camera. Multiple exposure capability. Film tab memo holder. Self-timer. A Nikon isn't bogged down with unnecessary features a photographer may never use.



## The Nikon System

The potential of every Nikon camera is reflected by the extensive Nikon system of SLR accessories. And unlike the majority of camera makers, Nikon produces its own optical glass. They don't just polish the elements and assemble the lenses. In fact, we've devoted two pages in the Lens Section to describe the beauty of nearly 70 interchangeable lenses available. From a 6mm fisheye that actually sees behind itself to the longest telephoto made by any camera manufacturer. With wide angles, zooms and many special purpose optics in between. In close-up photography, you can start with simple magnifying filters, go to special close-focusing lenses or add a bellows unit for high magnifications. Of course, there are all types of filters, flashes, camera and compartment cases, even Nikon cable releases and remote control firing units. And, all Nikon cameras give you the option of motor drive operation and, with the sole exception of the EM, the information from a data back.

So, we say there's almost nothing you can't accomplish in photography with Nikon cameras. Just ask any professional. Whether it's for photography, medicine, research, exploration (from the top of the world to the moon), or wherever, Nikon takes the world's greatest pictures. That's why Nikon cameras are used by more professionals than all other 35mm SLR cameras combined.

# Nikon F3

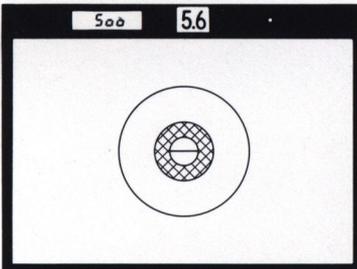


## The Ultimate 35mm SLR.

- Professional quality with aperture-priority automatic and manual exposure control as standard.
- Precise quartz digital control of manual shutter speeds (8 sec. - 1/2000 sec.) and electronic self-timer.
- World's first liquid crystal exposure display (LCD).
- Dedicated, through-the-lens (TTL) automatic flash metering system.
- Accepts six frames-per-second motor drive with power rewind.
- Interchangeable viewfinders, focusing screens and camera backs.
- Accepts the world's most comprehensive system of lenses and SLR accessories: The Nikon System.

Built on the performance-proven concept and heritage of the original Nikon F and F2, the hand-assembled Nikon F3 is a precision instrument that represents the culmination of over 34 years of camera building experience. The Nikon F3 is *the* electronic camera of the 1980's; as rugged and durable as it is versatile, for almost any photographic requirement. In the camera, large-scale integrated circuit microprocessors (LSI), which analyze and control camera functions, are protected within the F3's die-cast aluminum alloy chassis, effectively sealed to resist moisture and dust. They provide aperture-priority automatic exposure control and full manual operation with the added accuracy of quartz crystal shutter timing, as well as other sophisticated electronic functions such as TTL flash metering when combined with the Nikon Speedlight SB-12, or SB-11 and SB-14 when connected via the TTL Cord SC-12. A sensitive silicon photo diode (SPD), located in the mirror box, is heavily center weighted with 80% sensitivity at the

center and 20% towards the edges of the frame. The same SPD is used to measure both available light and flash illumination. The F3's light meter remains operational with any accessory finder or focusing screen. The Nikon F3's power consumption is extremely low, thanks, in part, to the revolutionary liquid crystal display (LCD) for exposure readout and other energy-saving features including its automatic meter shut-off circuit. When the F3 is coupled to its motor drive, all power is derived from the MD-4's power supply. Every feature of the professional Nikon F3 has been engineered to the highest quality and maximum efficiency. Its titanium shutter can withstand the rigors of six frames-per-second motor drive operation, and has been tested to an extraordinary level of 150,000 cycles. In fact, to ensure reliability, the entire Nikon F3 camera is computer tested and retested as each component is assembled. It's this unsurpassed design, construction and quality control that make the Nikon F3 the ultimate SLR.



Automatic exposure readout.



Overexposure on automatic.



Underexposure on automatic.



Proper manual exposure.



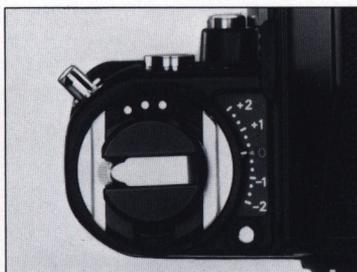
Overexposure on manual.



Underexposure on manual.

## LCD Viewfinder Display

Full information viewfinder shows either automatic or manual shutter speed with Nikon's aperture-direct-readout (ADR). Power efficient liquid crystal display facilitates comfortable reading even in extremely bright light. Depressing the electromagnetic shutter release halfway activates the F3's meter and LCD readout. The meter circuit remains active for exactly 16 sec. after pressure is released from the shutter button, turning itself off automatically to conserve battery power. On automatic, display shows the nearest standard calibrated shutter speed, with over- or underexposure warnings. On manual, an "M" appears next to the selected shutter speed with "+" and/or "-" indicators for manual metering.



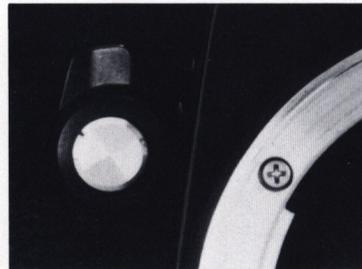
## Exposure Compensation

This dial is used to bias the exposure when shooting backlit scenes or dark-toned subjects in deep shade. Settings are in one-third f/stop increments from +2EV to -2EV. (At ASA/ISO 12 and 6400, ±1EV can be set.) This control is also used to bracket or create intentional over- or underexposures with the F3 set on automatic.



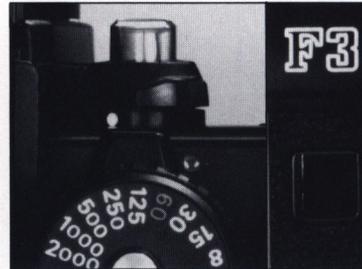
## Exposure Memory Lock

For proper automatic exposures of subjects in difficult lighting situations, place the subject in the 12mm diameter metering reference area of the focusing screen and press the memory lock to hold the automatic shutter speed setting. Then you may recompose the scene with the subject off-center while maintaining the memorized automatic exposure. The meter reading will then be based on the main subject, not the background.



## Depth-of-Field Preview/Mirror Lock-Up Lever

To preview actual depth-of-field or for stopped down metering when using non-meter coupled lenses, press this button. The surrounding lever locks up the mirror for vibration-free operation during critical work such as photomicroscopy.



## Electronic Self-Timer

The switch below the shutter speed dial activates the F3's electronic self-timer. Pressing the shutter release button starts the timing cycle. The red LED on the front of the F3 blinks with increasing frequency at the end of the 10 second delay. Turn the switch off to cancel the timing cycle at any time.



## On/Off Switch

The main power switch located around the hub of the film advance lever activates the camera for metering and shooting. Pressing shutter release halfway turns on the LCD viewfinder display. The LCD display will turn itself off automatically in 16 sec. when pressure is removed from the shutter button. When the F3 is switched off, the shutter release button is locked.



## Multiple Exposure Lever

This lever disengages film transport mechanism for intentional multiple exposures. The shutter may then be cocked without advancing the film or exposure counter. The multiple exposure lever can also be engaged during motor drive operation. Excellent for special effects.



## Mechanical Shutter Release

This lever is used to trip the shutter mechanically at 1/60 sec. when the camera batteries are removed or to conserve battery power when the shutter speed dial is set at "T" for long time exposures.

# Nikon F3



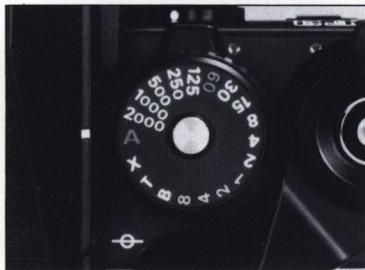
## Viewfinder Illuminator

When the light gets dim, the liquid crystal shutter speed display and aperture-direct-readout in the viewfinder can be illuminated by pushing the red button on the standard DE-2 or DE-3 High-Eyepoint finder. Lights only when meter is on.



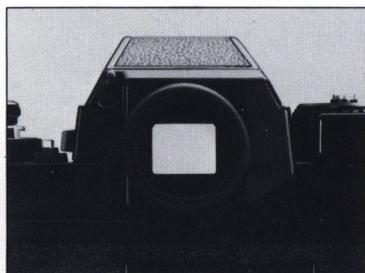
## Built-In Anatomical Grip

An integral part of the F3 camera body, the contoured handgrip serves as a comfortable handle while shooting. Made of a resilient, slip-resistant synthetic material.



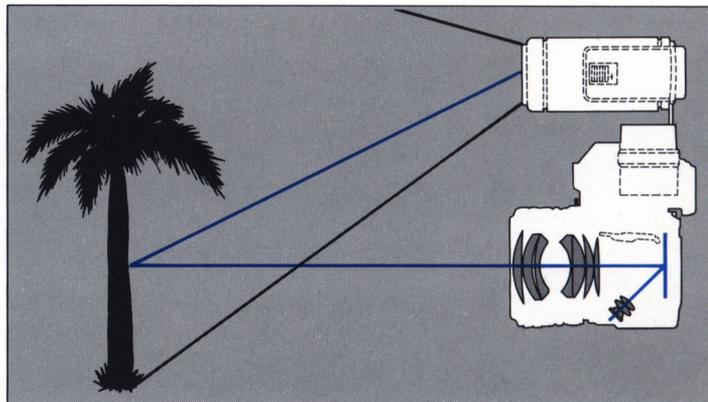
## Shutter Speed Dial

Knurled dial locks at "A" and "X" position to prevent accidental movement. In manual operation, all speeds from 1/2000 - 8 sec. and "X" (1/80 sec.) are quartz-timed for accuracy and consistent performance. For time exposures longer than 8 seconds, the F3 can be set at "B", or the mechanically controlled "T" position.



## Eyepiece Shutter

During remote camera operation and extreme macro-photography, direct sunlight entering the eyepiece may influence the automatic exposure. Push this lever to close the blind and prevent erroneous exposure readings.



## TTL Flash Metering

The Nikon F3's internal silicon photo diode metering cell exhibits instantaneous response to changing light and, therefore, is also used to control flash exposures through-the-lens from light reflected directly off the film plane during the exposure. The TTL system works with Nikon's Speedlight SB-12, or SB-11 and SB-14 when connected to the camera by the optional TTL Sensor Cord SC-12. (See Speedlight section, pages 3, 4, and 5 for complete information on each flash unit.) In addition to providing automatic through-the-lens flash exposures, each flash unit automatically sets the shutter to its proper synchronization speed of 1/80 sec. when the camera is on automatic or when the shutter speed is manually set to 1/125 sec. or faster. At slower shutter speeds, the F3 will fire at the set speed, permitting fill-flash operation while the TTL function remains operational. When the flash is recycled, a red LED flash ready-light appears in the viewfinder.

When the shutter release button is depressed, the mirror goes up, the shutter opens for 1/80 sec. and the flash begins to fire. As the diagram illustrates, the light travels out to the subject and is reflected back through the lens to the film plane. When the silicon photo diode determines that the correct amount of light has reached the film, it electronically tells the flash unit to cut its light output and the shutter then closes. If the light output was insufficient for a proper automatic exposure, the LED ready-light will blink as a warning. The LED also blinks if the camera's ASA/ISO has been set outside the Speedlight's range or if the flash is not properly mounted.

Automatic TTL flash metering with the Nikon F3 provides a number of distinct advantages compared to non-TTL flash photography. Exposure accuracy is more accurate because coverage of the TTL metering cell corresponds to the lens in use rather than the fixed angle for non-TTL units. And, because the exposure is based on the light at the film plane, there's no need to calculate a compensation factor when bouncing the light, using filters or a diffuser on the lens or flash, or even when the lens is extended for close-up photography. Unlike the conventional flash operation which limits the photographer to a few auto-flash aperture settings, TTL flash photography with the Nikon F3 allows free choice of shooting apertures for more complete control over depth-of-field and recycling time. Automatic TTL flash exposures can also be bracketed by engaging the F3's exposure compensation dial.

For detailed information on all Nikon Speedlight units and accessories, see Speedlight Section.

## Technical Specifications: Nikon F3

**Type of Camera:** 35mm single-lens-reflex

**Picture Format:** 24mm x 36mm (standard 35mm size)

**Lens Mount:** Nikon bayonet mount

**Shutter:** Horizontally traveling quilted titanium focal-plane shutter

**Shutter Release Button:** Electromagnetically controlled; switches meter on when depressed halfway (after power switch is turned on), meter then remains on for 16 sec. after finger is taken off button and turns off automatically; threaded to accept standard cable release

**Backup Mechanical Release Lever:** Trips shutter at 1/60 sec. regardless of shutter speed dial setting (except "T"); used when batteries become weak or exhausted, or none are installed in the camera

**Automatic Exposure Control:** Aperture-priority automatic exposure control; stepless shutter speeds from 8 sec. to 1/2000 sec.

**Manual Exposure Control:** Quartz digital control for 16 shutter speeds from 8 sec. to 1/2000 sec., including "X" (1/80 sec.); "B" and "T" also provided, as well as 1/60 sec. mechanically controlled speed

**Mechanical Shutter Control:** Possible at "T" setting on shutter speed dial or at 1/60 sec. when using backup mechanical release lever

**Viewfinder:** Interchangeable eyelevel pentaprism type DE-2 as standard; 0.8X magnification with 50mm lens set at infinity; virtually 100% frame coverage

**Eyepiece Shutter:** Provided; prevents stray light from entering viewfinder through the eyepiece

**Focusing Screen:** Type K as standard; interchangeable with 19 other types

**Exposure Metering:** Through-the-lens center-weighted metering with an 80/20 balance; silicon photo diode (SPD) and metering circuits incorporated into camera body; meter works with all interchangeable viewfinders and focusing screens

**Metering Range:** EV 1 to EV 18 (i.e., f1.4 at 1 sec. to f11 at 1/2000 sec. with 50mm f1.4 lens and ASA/ISO 100 film)

**Film Speed Setting:** ASA/ISO 12 to ASA/ISO 6400

**Accessory Shoe:** Provided; special Nikon type located at base of rewind knob; accepts SB-12 Speedlight Unit or SC-12 TTL Sensor Cord from SB-11/SB-14 for TTL direct flash output control; flash couplers are available for mounting ISO-type or F2-type direct mounting flash units

**Flash Synchronization:** Speeds up to 1/80 sec. with electronic flash; with SB-12 (or SB-11 and SB-14 when connected via the SC-12 TTL cord), flash sync is automatically set to 1/80 sec. when shutter speed dial is set to "A", or 1/125 sec. or above; at manual shutter speeds of 1/60 sec. or slower, flash sync speed corresponds to that setting; threaded sync terminal provided for off-camera or multiple flash photography

**Viewfinder Display:** Liquid crystal display (LCD) shows shutter speed; on Auto, +2000 indicates overexposure, -8- underexposure; on Manual, "M" appears with "+" indicating overexposure, "-" underexposure, and "-+" correct exposure; LED ready-light glows when SB-11, SB-14

or SB-12 Speedlight unit is completely recycled; aperture in use also shown through aperture-direct-readout (ADR) window

**Viewfinder Illuminator:** Provided; illuminates both LCD and ADR f/number

**Exposure Compensation Dial:** Provided; +2 to -2 EV in one-third increments

**Exposure Memory Lock:** Provided

**Multiple Exposure Lever:** Provided

**Self-Timer:** Quartz-controlled 10-sec. delayed exposure; LED blinks at 2 Hz for first 8 sec., then at 8 Hz for last two sec.

**Reflex Mirror:** Automatic instant-return type with lockup facility; incorporates air-damper and brake mechanism for reduced vibration and noise; special non-silvered spots provide TTL meter operation

**Depth-of-Field Preview:** Provided; coaxial with the mirror lockup lever

**Film Advance Lever:** Wound in single stroke or series of strokes; 30° stand-off angle and 140° winding angle

**Frame Counter:** Additive type; automatically reset when camera back is opened

**Film Rewind:** By crank after film rewind button is depressed; automatic film rewind possible when MD-4 Motor Drive is used

**Camera Back:** Hinged, interchangeable type; opened by pushing safety lock while pulling up rewind knob; memo holder provided

**Batteries:** Two 1.5V silver-oxide button type cells installed in clip fitting into camera's baseplate; when MD-4 Motor Drive is attached, camera gets battery power entirely from batteries in motor drive

**Dimensions (H x W x D):** 3.8" x 5.8" x 2.6"  
(96.5 x 148.5 x 65.5mm)

**Weight:** 24.7 oz. (700g) without lens

**Product Number:** 1690

**(Nikon F3 High-Eyepoint Camera: Product Number 1691)**

## Nikon F3 Interchangeable Viewfinders



There are five easily interchangeable viewfinder options for the Nikon F3 to facilitate different types of photography. Each viewfinder retains Nikon's renowned viewfinder accuracy with virtually 100% coverage. Plus, all the camera's automatic and manual functions, as well as exposure display, are operational with all finders. Exposure data is located outside the picture field for a clear view of the entire scene with any viewfinder attached.

**Eyelevel Finder DE-2** is supplied with the standard Nikon F3. Suited for general picture-taking, the DE-2 finder is silvered for a brighter image, and incorporates anti-reflection coating plus a multi-coated eyepiece. Magnification with a standard 50mm lens is 0.8X, with an apparent viewing distance of one meter (-1 diopter). To prevent extraneous light from entering the rear during remote operation, the DE-2 has a built-in eyepiece shutter.

**Product Number 2382**

**High-Eyepoint Finder DE-3** provides an upright and unreversed image with eyelevel viewing like the DE-2, but its special design allows eyeglass wearers to see the entire frame from up to an inch away from the eyepiece. Image magnification with a standard 50mm lens is 0.75X. The DE-3 also has a built-in eyepiece shutter and rubber eyepiece cover to protect eyeglasses from being scratched. A Nikon F3 High-Eyepoint camera (Product Number 1691) is also available.

**Product Number 2386**

**Action Finder DA-2** allows the photographer to see the entire picture with his eye up to 2.4 inches away from the eyepiece. It makes this finder option ideal for difficult sports or industrial shots where a helmet, goggles or safety glasses must be worn. It's also the finder to install when using the Nikon F3 in an underwater camera housing. Image magnification with a standard 50mm lens is 0.6X with -0.75 diopters eye relief.

**Product Number 2385**

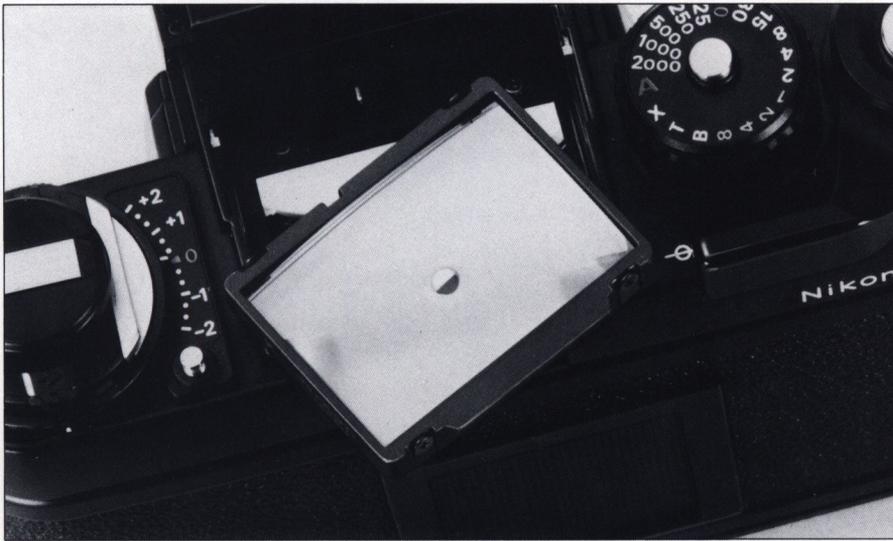
**Waist-Level Finder DW-3** lets you view the image directly off the focusing screen—upright, but reversed. It's used for low angle viewing or up-side-down photography where the photographer holds the camera above his head, a handy application for the photojournalist in a crowd. Since you view down through the top of the camera, the DW-3 is ideal for using the F3 on a copystand. The waist-level finder features a self-erecting hood and a built-in, pop-up 5X magnifier for critical focusing. Image magnification is 1X.

**Product Number 2383**

**High Magnification Finder DW-4** provides 6X magnification of the entire picture area, for critical focusing when the Nikon F3 is attached to a bellows unit, microscope or telescope. It has a built-in rubber eyecup and permits +3 to -5 diopter adjustment for individual eyesight correction. The DW-4 is necessary for aerial-image focusing with Type C or M screens which incorporate reticle reference lines. The image through this finder is upright, but reversed.

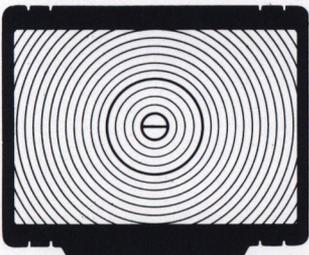
**Product Number 2384**

# Nikon F3 Focusing Screens

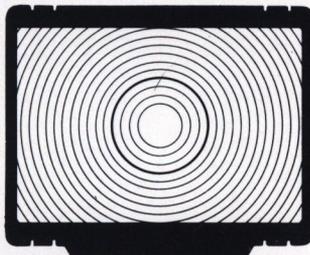


Although the standard K-type screen is flexible enough to handle most situations, there are certain instances when another screen is more suitable. Take macro-photography for example. The B-type screen offers unobstructed viewing and easy focusing. Or the E-type, with its grid pattern, works well when trying to keep straight lines straight, as in architectural photography. So, for more accurate focusing with the entire range of Nikon system accessories, there are 20 specialized screens available. They can be quickly changed with a fingertip, and are held securely in place at the top of the mirror box by an aluminum supporting frame and two spring-loaded finder clips, so the exact optical distance is always maintained. Each screen is a complex optical device consisting of an acrylic focusing surface and glass condenser lens held together in an aluminum frame. Finally, the 12mm diameter circle etched in many of the focusing screens denotes the area of center weighting for through-the-lens metering with the Nikon F3. See the next page for a complete description of each focusing screen along with a lens/screen compatibility chart.

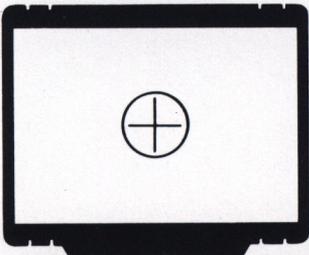
Type A



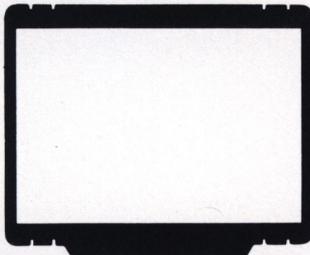
Type B



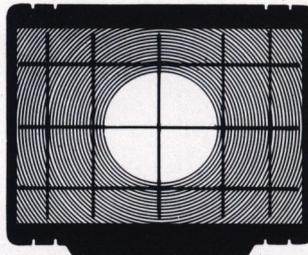
Type C



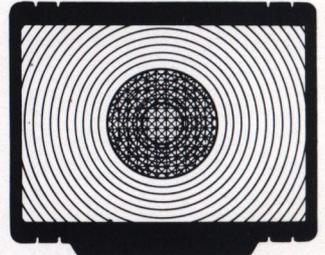
Type D



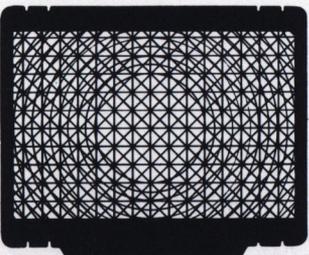
Type E



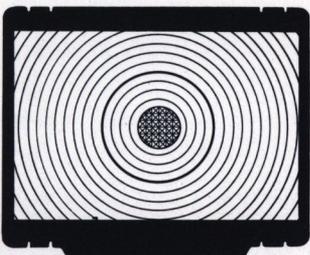
Type G



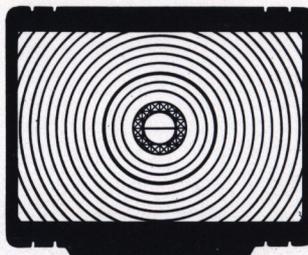
Type H



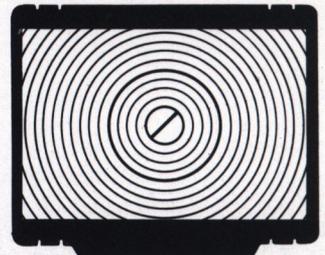
Type J



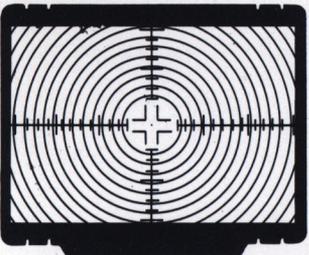
Type K



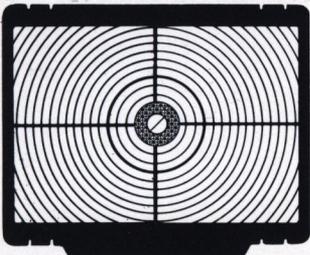
Type L



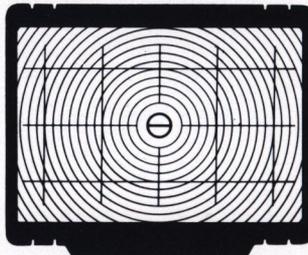
Type M



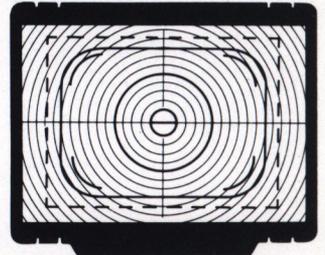
Type P



Type R



Type T



# Nikon F3 Interchangeable Focusing Screens

**Type A:** Matte/Fresnel field with 12mm-diameter reference circle and split-image rangefinder spot. Ideal for general photography.

**Product Number 2552**

**Type B:** Matte/Fresnel field with 12mm-diameter circle. For viewing without distraction. Recommended for lenses with small maximum apertures, such as the 500mm f8 Reflex-Nikkor, or for close-up photography.

**Product Number 2553**

**Type C:** Fine matte field with cross hair reticle in clear 4mm-diameter center spot. For parallax focusing of the aerial image in photomicrography or other high magnification work. Recommended for use with DW-4 or DG-2 having variable diopter eyepiece.

**Product Number 2554**

**Type D:** Overall fine matte field ensures unobstructed viewing. Used especially with long telephoto lenses or for close-up work.

**Product Number 2555**

**Type E:** The same as Type B but with the addition of horizontal and vertical reference lines for accurate image placement in architectural or commercial photography. Especially recommended when using PC-Nikkor lenses.

**Product Number 2556**

**Type G:** Clear Fresnel field with 12mm-diameter microprism focusing spot. Provides extremely brilliant image for focusing and viewing in low light. Available in four models to match specific focal lengths and aperture of various lenses.

**Product Numbers G-1/2557, G-2/2558, G-3/2559, G-4/2560**

**Type H:** Clear Fresnel field with microprism pattern over the entire screen area. Permits rapid focusing of moving subjects in dim light. Available in four models to match specific focal lengths and aperture of various lenses.

**Product Numbers H-1/2561, H-2/2562, H-3/2563, H-4/2564**

**Type J:** Matte/Fresnel field with 4mm-diameter microprism focusing spot in the center of 12mm-diameter circle. Covers most general purposes.

**Product Number 2565**

**Type K:** Combination of Type A (split-image) and J (microprism) screens. Provides rapid and accurate focusing in general photography. Supplied as standard equipment with the Nikon F3.

**Product Number 2551**

**Type L:** Similar to Type A but with the split-image rangefinder at a 45° angle. Effective when focusing on subjects with horizontal or vertical lines.

**Product Number 2566**

**Type M:** Double cross hair reticle and scales on a clear surface. Recommended for photomicrography, close-ups, and other work involving high magnification. Requires DW-4 or DG-2 viewfinder with variable diopter eyepiece.

**Product Number 2567**

**Type P:** Matte/Fresnel field with central 3mm-diameter split-image rangefinder at a 45° angle. 1mm-wide microprism band and 12mm-diameter reference circle surround the rangefinder. Has etched horizontal and vertical lines to facilitate composition. Suitable for general photography but originally designed for the Nikon space cameras.

**Product Number 2568**

**Type R:** Matte/Fresnel field with central 3mm-diameter split-image rangefinder and horizontal and vertical lines. No image darkening in rangefinder even with lenses having maximum apertures between f3.5 and f5.6. Ideal for architectural and commercial photography.

**Product Number 2569**

**Type T:** Matte/Fresnel field with split-image rangefinder. 12mm-diameter reference circle and horizontal and vertical lines. Shows standard TV format screen, plus "safe action" and "safe title" areas when preparing slides for TV broadcasts.

**Product Number 2570**

Lens	Screen:	A/L	K/P	T	B	E	J	R	C	D	G1	G2	G3	G4	H1	H2	H3	H4	M
Fisheye	6mm f2.8	○	○	○	○	○	○	▲	●	○	○	○			○	○	○		
	8mm f2.8	○	○	○	○	○	○	▲	●	○	○	○			○	○	○		
	16mm f2.8	○	○	○	○	○	○	▲		○	○	○			○	○	○		
Wideangle	13mm f5.6	●	●	●	○	○	○					■					○		
	15mm f3.5	○	○	○	○	○	○					■					○		
	18mm f3.5	○	○	○	○	○	○												
	20mm f3.5	○	○	○	○	○	○					■					○		
	24mm f2	○	○	○	○	○	○	▲				○				○	■		
	24mm f2.8	○	○	○	○	○	○	▲				○				○	■		
	28mm f2	○	○	○	○	○	○	▲				○				○	■		
	28mm f2.8	○	○	○	○	○	○	▲				○				○	■		
	E 28mm f2.8	○	○	○	○	○	○	▲				○				○	■		
	28mm f3.5	○	○	○	○	○	○					■	■			○	○		
	35mm f1.4	○	○	○	○	○	○	▲				○				○	■		
35mm f2	○	○	○	○	○	○	▲				○				○	■			
E 35mm f2.5	○	○	○	○	○	○	▲				○				○	■			
35mm f2.8	○	○	○	○	○	○	▲				○				○	■			
Normal	50mm f1.2	○	○	○	○	○	○	▲									○		
	50mm f1.4	○	○	○	○	○	○	▲									○		
	50mm f1.8	○	○	○	○	○	○	▲									○		
E 50mm f1.8	○	○	○	○	○	○	▲									○			
Telephoto	85mm f1.4	○	○	○	○	○	○	▲				■	○			○	○		
	85mm f2	○	○	○	○	○	○	▲				○				○	○		
	105mm f1.8	○	○	○	○	○	○	▲				○				○	○		
	105mm f2.5	○	○	○	○	○	○	▲				○				○	○		
	135mm f2	○	○	○	○	○	○	▲	■	■		○				○	○		
	135mm f2.8	○	○	○	○	○	○	▲	■	■		○				○	○		
	E 135mm f2.8	○	○	○	○	○	○	▲	■	■		○				○	○		
	135mm f3.5	○	○	○	○	○	○					○				○	○		
	ED 180mm f2.8	○	○	○	○	○	○	▲	■	■		○				○	○		
	ED 200mm f2 IF	○	○	○	○	○	○	▲	○	○		○				○	○		
	200mm f4	○	○	○	○	○	○	▲	○	○		○				○	○		
ED 300mm f2.8 IF	○	○	○	○	○	○	▲	○	○		■	○			○	○	○	■	
300mm f4.5	○	○	○	○	○	○	▲	○	○		○			○	○	○	■	■	
ED 300mm f4.5 IF	○	○	○	○	○	○	▲	○	○		○			○	○	○	■	■	
Super Telephoto	ED 400mm f3.5 IF	○	○	○	○	○	○	○	○		○			○	○	○	○	○	○
	ED 400mm f5.6 IF	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○
	ED 600mm f4 IF	○	○	○	○	○	○	○	○	○		○			○	○	○	○	○
	ED 600mm f5.6 IF	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○
	ED 800mm f8 IF	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○
	ED 1200mm f11 IF	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○
Zoom	25-50mm f4	○	○	○	○	○	○												
	35-70mm f3.5	○	○	○	○	○	○					○							
	E 36-72mm f3.5	○	○	○	○	○	○					○							
	ED 50-300mm f4.5	○	○	○	○	○	○							○	○	○	○	○	○
	E 70-210mm f4	○	○	○	○	○	○							○	○	○	○	○	○
	E 75-150mm f3.5	○	○	○	○	○	○							○	○	○	○	○	○
	80-200mm f4	○	○	○	○	○	○							○	○	○	○	○	○
	ED 180-600mm f8	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○
200-600mm f8.5	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○	
ED 360-1200mm f11	●	●	●	○	○	○	○	○	○		○			○	○	○	○	○	
PC	28mm f3.5	●	●	●	○	○	○												
	35mm f2.8	●	●	●	○	○	○	▲											
Noct	58mm f1.2	○	○	○	○	○	○	▲					○						
	Micro	55mm f2.8	●	●	●	○	○	○				■	○						
		105mm f4	●	●	●	○	○	○							○	○	○	○	○
Medical	200mm f4 IF	○	○	○	○	○	○	○	○	○	○	○							
	120mm f4 IF	○	○	○	○	○	○	○	○	○	○	○							
Reflex	500mm f8	●	●	●	○	○	○	○	○	○	○	○							
	1000mm f11	●	●	●	○	○	○	○	○	○	○	○							
	2000mm f11	●	●	●	○	○	○	○	○	○	○	○							

**Lens/Screen Selection Chart**

○ = Excellent

● = Acceptable

The image is brilliant from edge to edge but the central rangefinder, microprism or crosshair area is dim. Focus on the surrounding matte area.

■ = Acceptable

Slight vignetting or moire phenomenon affects the screen image. But the image on film shows no traces of this.

▲ = Acceptable

Incompatible with any lens having a maximum aperture larger than f2.8 since this decreases the efficiency and accuracy of the screen rangefinder, the in-focus image in the central spot may prove to be slightly out of focus on film. Focus on the surrounding matte area.

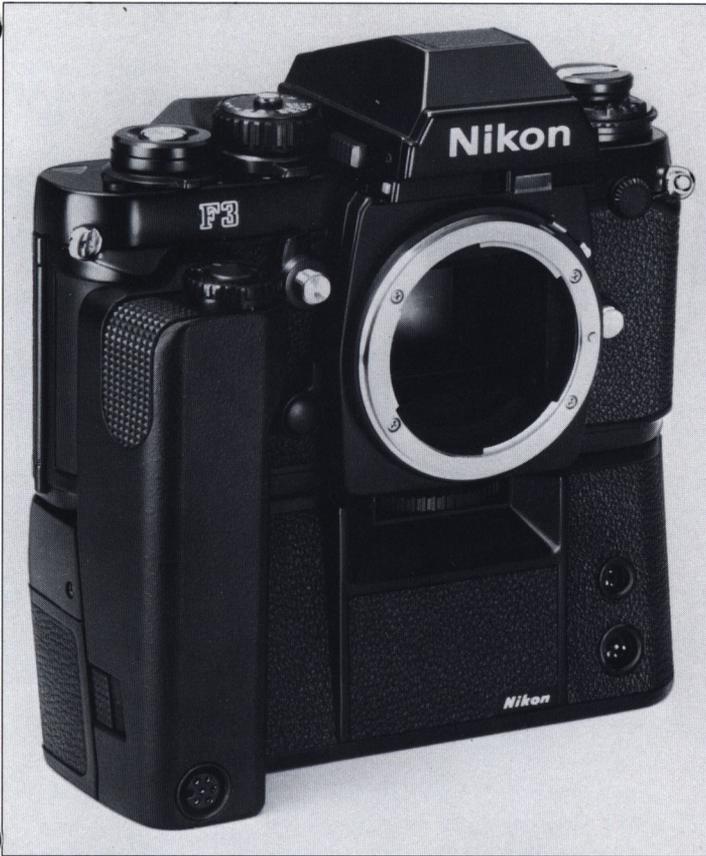
■ = Measure exposure by the full aperture method.

■ = Use the stop-down measuring method. Blank means not usable.

**Note:** Since the Type M screen is used for macrophotography at a 1:1 magnification ratio as well as for photomicrography, its application is different from that of the other screens.

Blank means not usable.

# Nikon Motor Drive MD-4



The Nikon Motor Drive MD-4 for the Nikon F3 camera is the fastest regular production motor drive on the market today, capable of firing continuously at up to six frames-per-second.\* Designed in conjunction with the Nikon F3 camera, the MD-4 Motor Drive was constructed to take the rigors of a NASA space mission and naturally lends itself to daily professional use. It's made of die-cast metal and incorporates a single, compact, coreless motor for winding and rewinding efficiency.

The three-position control switch on the grip has settings for single-frame (S) or continuous firing (C) plus a lock (L). Slight pressure on the release activates the camera meter. A subtractive frame counter on the back of the motor (see inset photo) automatically shuts off the motor when it reaches "0", to prevent tearing the roll of film, especially in cold weather. It also permits controlled "bursts" of a predetermined number of frames. For shooting with the MF-4 bulk film back, the frame counter is set at the orange dot. LED's light to confirm film advance and doubles as a battery check.

Because of the efficient design of both motor drive and camera, battery power consumption has been substantially reduced. The MD-4 requires only eight AA-type penlight batteries or the optional MN-2 NiCad battery pack. The MD-4 also provides power to the F3's microelectronic circuitry. Thus, if a cold weather-resistant NiCad battery is installed in the MD-4, the Nikon F3 camera can be used in temperatures down to -20°C without battery failure.

On the front of the MD-4 Motor Drive are three separate electrical terminals. The socket at the base of the handgrip accepts the cord from the MF-4 250-Exposure Magazine, to connect it to the motor's power system. The top terminal opposite the grip is for an external power supply, Nikon AC/DC Converter MA-4. The bottom terminal, the larger of the two, permits attaching a variety of remote control devices. (See SLR Accessory Section for complete listing of all Nikon remote control equipment.)

\*At 1/125 sec. or faster with MN-2 NiCad Battery and mirror locked up.

## Technical Specifications: Nikon Motor Drive MD-4

**Camera Fitting:** Nikon F3; remove film chamber cap on bottom of camera before attaching MD-4 Motor Drive to camera

**Shooting Modes:** Choice of single-frame (S) or continuous (C) firing via S-C mode selector ring on handgrip which has lock (L) position to prevent inadvertent release; framing rates automatically adjusted depending on camera's shutter speed

**Shutter Release:** By electromagnetic trigger button; also switches on camera meter when depressed halfway; meter remains on for 16 secs. after finger is lifted off button

**Frame Counter:** Subtractive type which shows the number of frames remaining; useful in very low temperatures

**Automatic Winding Stop:** Provided; motor automatically shuts off at film's end; the LED lights up continuously when the film supply is exhausted

**Automatic Film Rewind:** 4.5 sec. with NiCad Battery Unit MN-2 and 8 sec. with alkaline penlight batteries for 36-exposure roll; automatic film rewind stop with optional MF-6 Camera Back

## Firing Speeds/Film Capacity:

MD-4 Power Supply	Power Source	Mirror Up 1/125-1/2000	Reflex Viewing 1/125-1/2000	Capacity of 36 Exp. Rolls (Incl. Power Rewind)
MN-2 NiCad Unit	Built-in NC Cells	6.0 fps*	5.5 fps	70
MA-4 AC/DC Converter	100-120v AC, 50-60 Hz	5.5 fps	5.0 fps	unlimited
MS-3 Battery Holder	8 AA alkaline batteries	4.0 fps	3.8 fps	140

The firing rates decrease at shutter speeds slower than 1/125 sec.

\*At 1/125 sec. or faster with MN-2 NiCad Battery and mirror locked up.

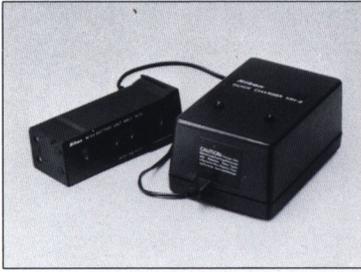
**Dimensions (H x W x D):** 5.8" x 4.5" x 2.8"  
(146.5 x 115 x 71mm)

**Weight:** 16.9 oz. (480g)

**Product Number:** 120

Specifications subject to change without notice.

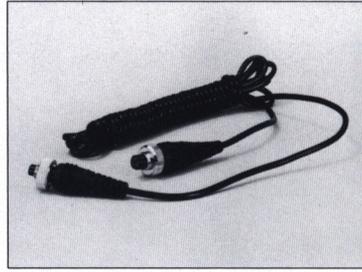
# Nikon Motor Drive MD-4 Accessories



## NiCad Battery Unit MN-2 and Quick Charger MH-2

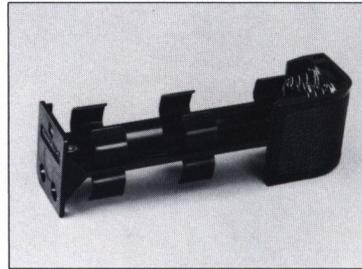
The most versatile and economical power source for the MD-4 motor drive. NiCad Battery Unit MN-2 provides the fastest firing rate possible—up to six frames-per-second (at 1/125 sec. or faster with the mirror locked up). It's recommended when using the Nikon F3 in extremely cold weather, down to  $-20^{\circ}\text{C}$ . With the Quick Charger MH-2, an exhausted battery can be recharged in approximately three to four hours.

**Product Number**  
MN-2/125, MH-2/126



## External Power Cord MC-11

This connecting cord is used between the MD-4 motor drive and AC/DC Converter MA-4. (See SLR Accessories Section for complete information on the MA-4 converter.) This power source is highly recommended for photographers who mainly use the F3/MD-4 in the studio.  
**Product Number 132**



## Battery Holder MS-3

Supplied with the MD-4 motor drive, this battery holder accepts eight AA-type penlight batteries, for normal shooting at up to 3.8 frames-per-second.  
**Product Number 127**



## Tripod Adapter AH-2

To incorporate the battery pack in the motor for compactness, the tripod socket was located off center by necessity. The AH-2 tripod adapter attaches to the base of the MD-4 Motor Drive and repositions the tripod socket at the center for convenient use on a tripod, copystand and similar applications.

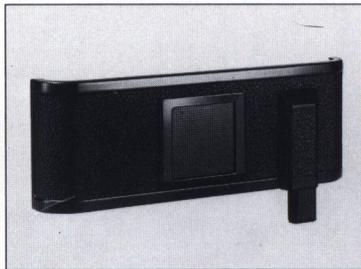
**Product Number 129**



## Remote Cord MC-12

The Remote Control Cord MC-12 is used to fire the Nikon F3 and motor drive from up to nine feet (3m) away. When the trigger button is depressed halfway, it automatically turns on the camera's metering system; when depressed completely, it trips the shutter for single frame or continuous firing, depending on where the motor drive's mode selector is set.

**Product Number 133**

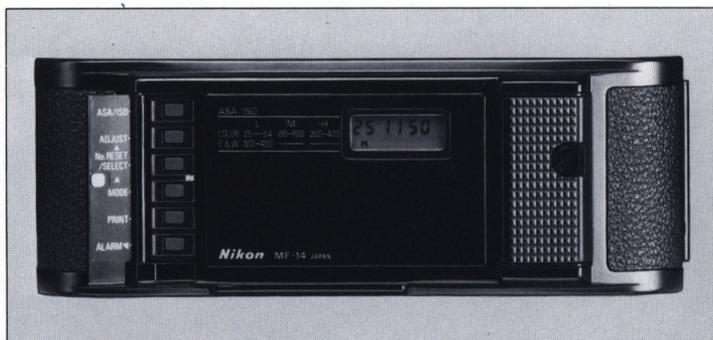


## Camera Back MF-6

This optional camera back for the Nikon F3 provides automatic rewind-stop with the leader left outside the film cartridge, rather than being completely rewound. It is valuable when film is processed using daylight-load and automated processing systems. There's a handy film memo holder and thumb-grip for even greater handling ease.

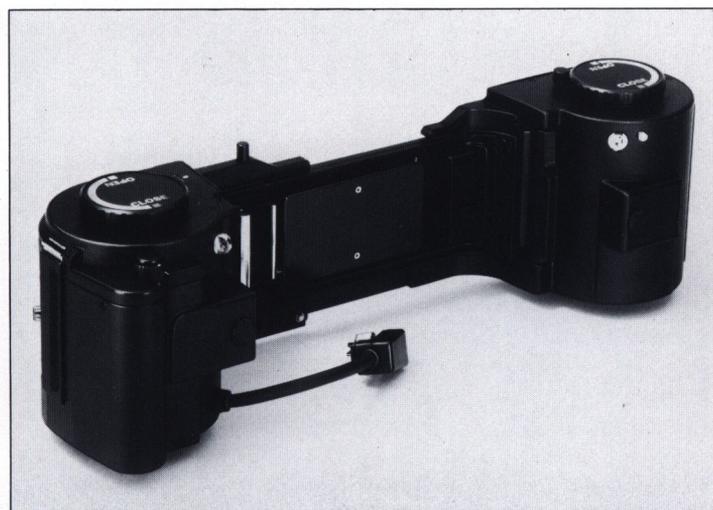
**Product Number 124**

# Nikon F3 Camera Backs



## Nikon Data Back MF-14

The Nikon Data Back MF-14 is for use in place of the regular back on the Nikon F3 to record pertinent information directly at the lower right-hand corner of the picture frame in red numerals on color film. It can be set to print the date (year/month/day), time (day/hour/minute) or any digits up to 2000 for frame counting or numbering sequential rolls of film. This calendar/clock has been programmed until February 28, 2100, and automatically adjusts for leap years. All data back functions such as film speed and mode change are adjusted by push button keys like a pocket calculator. For the traveling photographer, the MF-14 Data Back incorporates a handy, quartz-timed alarm.



## Nikon 250-Exposure Magazine Back MF-4

The standard camera back on the Nikon F3 can be easily interchanged with this bulk film back for up to 250 consecutive exposures before reloading. The MF-4 has a built-in micromotor to drive the takeup magazine, which is powered by the MD-4 Motor Drive power supply. For convenient handling, the MF-4 has its own shutter release button. Two frame counters are provided on the MF-4; an additive counter to keep track of the total number of frames exposed and a subtractive counter that shows the remaining number of unexposed frames. When the subtractive counter reaches "0," the motor drive automatically stops firing. This feature allows the user to preset the exact number of frames for continuous firing, as fast as six frames-per-second. The 250 Exposure Magazine MF-4 is suitable for a wide range of photographic applications such as monitoring experiments, quantity slide duping, covering fast action sports, documenting a space launch, etc.

## Technical Specifications: Nikon Data Back MF-14

- Usable Camera:** Nikon F3 cameras (including F3 High-Eyepoint) with or without motor drive
- Usable Film Speed Settings:** ASA/ISO 100-400 for B&W films, ASA/ISO 25-400 for color films
- Film Speed Adjustment:** Depressing the Film Speed Set Button sets film speed up to any one of three settings (L,M,H)
- Data Imprint Type:** By 7-segment, 6-digit red LEDs
- Imprint Data:** Year/Month/Day, Day/Hour/Minute or any digits up to 2000 for frame counting. Automatically programmed until Feb. 28, 2100, and adjusted for leap years
- Imprinted Area:** Lower right-hand corner of picture frame
- Imprinted Area Size:** 0.5mm (high) x 6.6mm (width) when all 6 figures appear
- Data Imprint Decision:** By data imprint ON/OFF switch
- Quartz-Timed Alarm Device:** Emits alarm tone at pre-set time
- Data Adjustment:** By pushing ADJUST button, year, month, day, hour and minute are separately set. Also, frame counting numbers can be adjusted
- Imprint Signal:** Via data back contacts on the F3 camera
- Data Display:** By 7-segment, 6-digit LCD
- Power Source:** Two 1.55V silver-oxide (SR-44 type) batteries
- Battery Life:** Approx. one year (varies depending upon frequency of use or film in use)
- Timing Accuracy:** Within  $\pm 30$  seconds a month (at normal temperature)
- Temperature:**  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  in use,  $-20^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  in storage
- Dimensions (WxHxD):** 5.9" x 2.1" x 1" (148.5 x 53.5 x 26mm)
- Weight:** 3 oz. (85g) without batteries
- Product Number:** 4411

## Technical Specifications: Nikon 250 Exposure Back MF-4

- Usable Camera:** Nikon F3
- Usable Motor Drive:** Nikon MD-4
- Film Cassettes:** Two Nikon Film Cassettes MZ-1
- Shooting Mode:** Choice of single-frame (S) or continuous (C) firing via the MD-4 motor drive's mode selector
- Firing Rate:** Up to 6 fps. (with the mirror locked up, at 1/125 sec. or faster using the NiCad Battery Unit MN-2)
- Usable Shutter Speeds:** 8 to 1/2000 sec., A (Auto), X (1/80), T and B
- Automatic Film Rewind Stop:** Film advance stops automatically when the subtractive frame counter reaches "0." When the film end fails to come out of the supply cassette spool, the MD-4 Motor Drive detects the film's tension and stops automatically
- Battery Check:** When two LED indicators light, battery power is full; when only one LED indicator lights, power is low; when no LED indicator lights, batteries must be changed
- Power Source:** 8 AA-type 1.5V penlight batteries in motor drive, NiCad Battery Unit MN-2 or AC/DC Converter MA-4
- Remote Control Accessories:** Remote Cord MC-12 or MC-4, the Radio Control Set MW-1 Modulator Remote Control Set ML-1 or Intervalometer MT-1
- Dimensions (WxHxD):** 11.9" x 3.9" x 3.3" (303.2 x 98.5 x 84mm)
- Weight:** Approx. 2 lb. 6 oz. (1.1 kg) without film cassettes
- Product Number:** 134

Specifications subject to change without notice.

## Nikon FM2

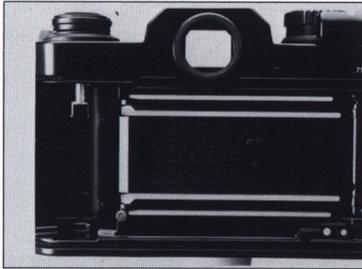


### The World's Fastest 35mm SLR.

- **Unique mechanical shutter design provides top speed of 1/4000 sec.**
- **X-sync at 1/200 sec.; the fastest available for a focal-plane shutter camera.**
- **Full manual operation and mechanical control—the FM2's shutter works without batteries at all speeds.**
- **Full information viewfinder with precise LED match-diode metering.**
- **Interchangeable focusing screens, camera back and motor drive capability.**
- **All metal construction for strength and years of dependable operation.**

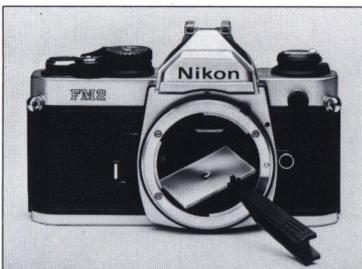
Proprietary technology in the development of shutter assemblies enabled Nikon to produce a world's first—vertical-traverse titanium shutter curtains with a slit travel time that is twice as fast as the shutter in any other 35mm SLR camera. It permits a top shutter speed of 1/4000 sec. with the FM2, as well as the fastest X-sync speed available for a camera of this type, 1/200 sec. The Nikon FM2 can stop action where a flash was once necessary. And the fast flash sync speed virtually eliminates ghost images caused at slower sync speeds, making synchro/sunlight photography easier than ever. Increasing the travel velocity of the FM2's shutter has one additional effect on camera performance. Closer tolerances on shutter timing at all high speeds.

The Nikon FM2 is a mechanical camera, requiring battery power only for the light meter and LED flash ready-light. It allows full manual control over shutter speed and aperture setting with quick and easy match-diode metering. Other features include interchangeable focusing screens, energy-saving meter switch, depth-of-field preview, self-timer, and Nikon's performance proven center-weighted metering. Like all Nikon cameras, the FM2 is constructed of the finest materials including an aluminum alloy body and back with brass top and bottom covers. Designed to stand up to professional use, the Nikon FM2 accepts the Motor Drive MD-12, Data Back MF-12 and all AI-Nikkor and Nikon Series E lenses.



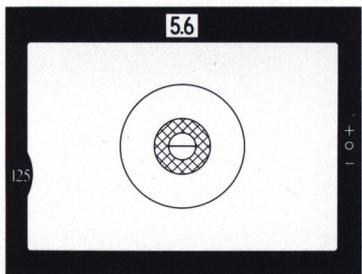
## Exclusive Shutter Design Provides 1/4000 sec.

In the Nikon FM2, a top shutter speed of 1/4000 sec. was achieved by reducing the weight and mass of the titanium shutter curtains. This permitted their travel velocity to be increased, a much more accurate way to achieve high speed than just using a narrower slit width. The specially treated titanium curtains are 58% lighter than conventional ones and utilize an etched honeycomb pattern to maintain strength and rigidity.



## Interchangeable Focusing Screen

The standard Nikon K screen comprised of central split-image rangefinder spot, microprism collar, and matte/Fresnel outer field (12mm diameter reference circle denotes center-weighted metering area) can be removed by pressing the small latch at the top of the mirror box. The optional Type B screen has a 12mm fine ground matte focusing spot for close-up or telephoto work and the E screen shows a grid of vertical and horizontal lines which is well suited for copy work and architectural photography. (The same screens may be used in the Nikon FE.)



## Full Information Viewfinder

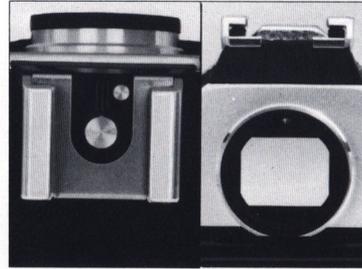
Viewfinder shows 93% of the actual scene with excellent centering, an important asset for good composition. The selected shutter speed and aperture are shown with accurate LED match-diode metering. The LED exposure display lights in five different combinations for precise manual metering.

+ Overexposed by more than 1 stop
+ ○ Overexposed by 1/5 to 1 stop
○ Correct exposure
○ Underexposed by 1/5 to 1 stop
- Underexposed by more than 1 stop



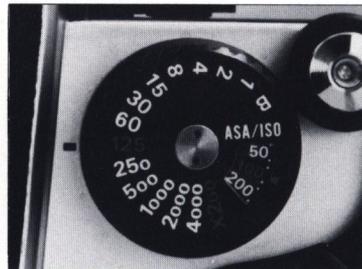
## Depth-of-Field Preview

Conveniently located lever may be pushed to stop down lens for previewing actual depth-of-field during full aperture metering. Also used for stop down metering for non-meter coupled lenses.



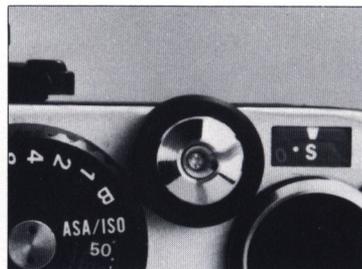
## Hot Shoe/Flash Ready LED

The hot shoe on the Nikon FM2 has an extra electrical contact which transmits a signal between camera and flash. When used with the Nikon Speedlight SB-E, SB-10 or SB-15, the LED lights to indicate the flash is recycled and ready to fire. If the FM2 is inadvertently set at a shutter speed faster than the top X-sync of 1/200 sec., the LED blinks to warn the user when the SB-15 or other dedicated Nikon Speedlights are used.



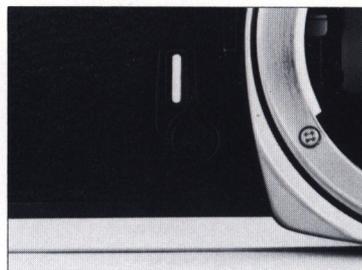
## Shutter Speed/ASA-ISO Dial

FM2 provides mechanically-timed shutter speeds from 1-1/4000 sec., plus "B" for time exposures. Knurled shutter speed dial can be lifted to set film speed from ASA/ISO 12-6400—the widest range in its class to accommodate special emulsions and push-processing film for higher light sensitivity.



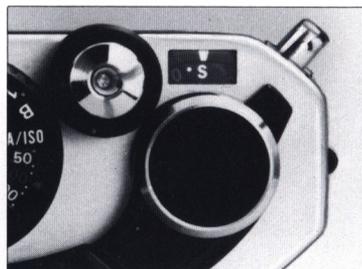
## Energy-Saving Meter Switch

The FM2's shutter release button is threaded to accept a standard cable release; also functions as a meter-on switch. Depressed halfway, it turns on the viewfinder LED display. The meter shuts off automatically approximately 30 sec. after pressure is removed from the shutter release button.



## Self-Timer

Mechanical self-timer provides 10 sec. firing delay, and may be cancelled. In addition, when the self-timer is activated, the mirror immediately goes up, eliminating any chance of camera shake during critical close-up or long telephoto shooting.



## Multiple Exposure Lever

Lever adjacent to film advance disengages transport mechanism for intentional multiple exposures. Excellent position allows for convenient motor-driven multiple exposures as well, with precise frame registration. Frame counter doesn't advance.

## Technical Specifications: Nikon FM2

**Type of Camera:** 35mm single-lens-reflex (SLR)  
**Picture Format:** 24mm x 36mm (standard 35mm size)  
**Lens Mount:** Nikon bayonet mount  
**Lenses:** Nikon/Nikkor AI lenses; Non-AI lenses cannot be mounted  
**Shutter:** Vertical-travel, metal, focal plane, mechanical shutter with titanium curtains  
**Shutter Release:** Mechanical; center-threaded shutter release button accepts AR-3 Cable Release; button locked when film advance lever is flush with camera body  
**Shutter Speed Settings:** 1/4000 sec. - 1 sec. X200 (1/200 sec.), B (Bulb)  
**Film Advance Lever:** Single-stroke type; 30° stand-off angle and 135° winding angle  
**Self-Timer:** Set/cancel mechanical type provided; approx. 10-sec. shutter release delay  
**Viewfinder:** Eye-level pentaprism type; 0.86X magnification with 50mm lens set at infinity; finder coverage approx. 93% of picture field  
**Viewfinder Display:** Shutter speed, ADR (aperture-direct-readout)/f/stop in use, and five different LED exposure displays using "+", "o" and "-" signs  
**Focusing Screen:** Split-image microprism type (Type K) provided as standard; matte type (B) and matte with horizontal and vertical line etchings (E) also available; screens usable with Nikon FE  
**Reflex Mirror:** Automatic quick-return type incorporating special control gear and wheel-and-brake mechanism for reduced vibration and noise; non-lockable type  
**Depth-of-Field Preview:** Provided  
**Multiple Exposure Lever:** Provided; disengages frame counter for correct count  
**Frame Counter:** Additive type (S.O.-36); automatically resets to "S" when camera back is opened  
**Film Rewind:** By crank provided after film rewind button is pressed  
**Flash Synchronization:** Built-in ISO-type hot-shoe; threaded sync cord terminal provided for off-camera or multi-flash photography; synchronization with electronic flash units at speeds up to 1/200 sec.  
**Flash Ready-Light:** LED provided; visible inside viewfinder; lights up when SB-15, SB-10 or SB-E Speedlight unit used is fully charged; blinks to warn that the shutter speed set is beyond the electronic flash's sync range when the SB-15 or other dedicated Nikon Speedlights are used  
**Exposure Metering:** Through-the-lens center-weighted full aperture exposure measuring system using a pair of SPDs (silicon photo diodes) and metering monolithic IC circuit  
**Metering Range:** EV 1 to EV 18 at ASA/ISO 100 and with f1.4 lens (i.e., from 1 sec. at f1.4 to 1/1000 sec. at f16)  
**Film Speed Settings:** ASA/ISO 12 - ASA/ISO 6400  
**Power Source:** Choice of one 3V lithium battery, two 1.55V silver-oxide batteries, or two 1.5V alkaline-manganese batteries; optional Anti-Cold Battery Holder DB-2 accepting two AA-type penlight batteries available  
**Exposure Meter Switch:** Light pressure on shutter release button switches meter on; meter stays on for approx. 30 sec. after finger leaves button, then automatically switches off; meter automatically turned off when shutter speed dial is set at X200 or B

**Battery Check:** LED exposure display inside viewfinder lights up when exposure meter is switched on if there is sufficient power (i.e., shutter speed dial is set anywhere except "X200" and "B")

**Camera Back:** Opens by lifting the film rewind knob as the camera back lock is pushed counterclockwise; detachable and interchangeable with Data Back MF-12; memo holder provided

**Dimensions (W x H x D):** 5.6" x 3.5" x 2.4"  
(142.5 x 90 x 60mm)

**Weight:** 19 oz. (540g)

**Product Number:** 1687 (chrome)/1688 (black)



## Nikon Motor Drive MD-12

The Nikon MD-12 Motor Drive couples directly to the baseplate of the Nikon FM2, as well as the Nikon FE and FM cameras. There are no body caps to remove. Its two-position mode selector switch surrounding the release button can be set at "S" for single frame auto film advance or "C" for continuous operation at up to 3.2 frames per second (3.5 fps with the Nikon FE and FM cameras). The MD-12's on/off switch is used to turn on the camera meter, while slight pressure on the motor's release button activates the viewfinder LED display. A set of eight AA-type penlight batteries can power as many as 100 36-exposure rolls of film through the camera at its maximum firing rate. And the motor itself provides an excellent handgrip with good camera balance. The MD-12 has a built-in electronic terminal to connect a variety of Nikon remote control accessories such as the MT-1 Intervalometer, ML-1 Modulite Control Outfit or MW-1 Wireless Radio Control Outfit. See Page 1 of the SLR Accessories Section for complete information on each of these accessories.



## Nikon Data Back MF-12

The standard back cover of the Nikon FM2 can be interchanged with the MF-12 data back to record the date (year/month/day), time (day/hour/minute) or two-digit numerical reference number directly on the lower right-hand corner of the picture frame. The information is recorded in red with color film. The MF-12 features an accurate quartz-timed clock with liquid crystal display, which has been programmed to automatically adjust the date until the year 2100. The data back is synched with the shutter via the camera's PC terminal. Optional accessories include the Battery Holder DB-3 for cold weather operation and the CF-15D Camera Case Base. Perfect for scientific photography or any other use requiring precise documentation.

## Technical Specifications: Nikon Motor Drive MD-12

**Cameras Usable:** Nikon FM2 and Nikon FE/FM screw-on type connection via tripod socket

**Framing Speed:** Up to approx. 3.2 frames-per-second (fps) at a shutter speed of 1/125 sec. or faster, progressively slower rates at lower shutter speeds, automatically

**Usable Shutter Speeds:** 1/2 to 1/4000 sec. for "C" setting; 1/2 to 1/4000 sec. for "S" setting with the Nikon FM2

**Power Source:** 8 AA-type 1.5V penlight batteries housed in integral battery chamber; set of alkaline batteries will last for approx. 100 36-exposure rolls of film

**Pilot Lamp:** Built-in LED-type; switches on during operation and when the film supply is exhausted

**Remote Control Operation:** Terminal provided for optional accessories

**Dimensions (W x D x H):** 5.7" x 2.7" x 4.3"  
(144 x 68.5 x 109.5mm)

**Weight:** 14.5 oz. (410g)—without batteries

**Product Number:** 102

## Technical Specifications: Nikon Data Back MF-12

**Usable Cameras:** Nikon FM2, Nikon FM, Nikon FE

**Attachment:** Interchangeable with regular camera back

**ASA/ISO Film Speeds:** Black and White: ASA/ISO 100-400;  
Color: ASA/ISO 25-400

**Film Speed Selection:** 3 steps via selector

**Data Imprinting:** Via 6 digit 7 segment LEDs on pressure plate; data imprinting in lower right-hand corner of frame at instant of exposure

**Data:** Year-Month-Day, Day-Hour-Minute, or any one or two digit number up to 99

**Data Selection and Setting:** Possible with three buttons (ADJUST, SELECT, CHANGE); dating available until 2100, automatic adjustment of year change

**Size of Imprinted Data:** Letter height 0.5mm, total width of letter display 6.6mm

**ON/OFF Switch for Data Imprinting:** Provided

**Data Imprinting Confirmation:** LED indicator blinks if data is imprinted. This LED also indicates exhausted batteries

**Data Display:** Via 6 digit 7 segment LCD on display panel

**Timing:** Quartz oscillator

**Timing Accuracy:** ±15 seconds per month without adjustments for irregular months or leap years

**Power Source:** Two 1.55V silver-oxide batteries

**Dimensions (H x W x D):** 2.1" x 5.6" x 1" (53 x 142.5 x 26mm)

**Weight:** 2.6 oz. (75g) without batteries

**Accessories:** Battery Holder DB-3 accepting two AAA-type penlight batteries; Camera Case Base Portion CF-15D

**Product Number:** 4412

Specifications subject to change without notice.



## Automatic with Full Manual Override.

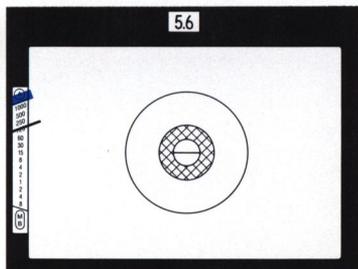
- Aperture-priority automatic exposure control.
- Full manual operation with true “match-needle” metering.
- Consistently accurate, electronically-timed shutter speeds from 8 - 1/1000 sec.
- Dual auto exposure overrides — memory lock *and* exposure compensation dial.
- Full information viewfinder accepts interchangeable focusing screens.
- All metal construction, including shutter, for ruggedness and dependability.

The Nikon FE is an automatic exposure 35mm SLR that performs equally well on manual, and is built to meet professional photographic demands. For long-range durability, the Nikon FE is constructed around a metal chassis with brass top and bottom covers. Even its shutter has metal blades, more rugged than cloth. Yet the FE remains compact and lightweight for easy handling. A Nikon-developed monolithic integrated circuit electronically times both stepless automatic and manual speeds for high accuracy and consistent exposures. And gold-plated contacts on the functional resistance element, which ensure reliability, relay data from the meter to the shutter mechanism.

Even on automatic, the Nikon FE gives the photographer two ways to override the exposure with both a memory lock and exposure compensation control. And when set on any manual shutter speed, the FE

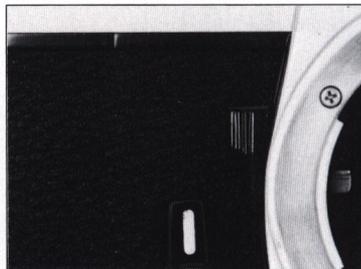
becomes a manual “match-needle” camera. But it’s easier and more convenient to use manually than most automatic cameras, thanks to the full information viewfinder display. While the FE needs batteries for full operation, it won’t desert you if the batteries should fail, with its mechanically controlled 1/90 sec. shutter speed at the “M90” setting.

The Nikon FE isn’t bogged down with unnecessary options, just features you’ll use like the depth-of-field preview, self-timer, and multiple exposure capability. Plus, the camera accepts a data back, motor drive, and more. Dedicated Nikon electronic flash units can program the shutter to the proper X-sync speed and activate an LED flash ready-light in the eyepiece. And, nearly every Nikon SLR accessory, AI-Nikkor and Series E lens can be used with the Nikon FE for unsurpassed flexibility in photography.



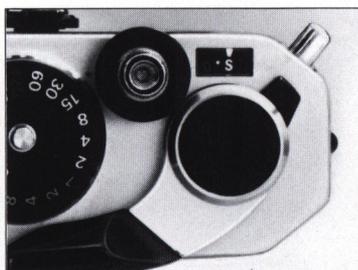
## Full Information Viewfinder

The Nikon FE displays all necessary exposure data in the viewfinder for both automatic and manual exposure control. The selected lens aperture appears at the top. On AUTO, needle indicates camera-selected shutter speed; on manual, the user aligns shutter speed index bar with moving meter needle for proper exposure.



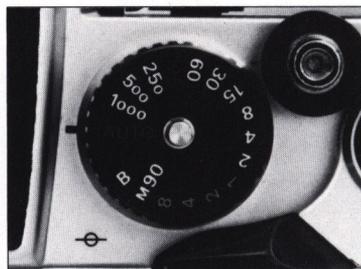
## Depth-of-Field Preview

To preview the actual range of sharp focus at any set aperture, lever is pressed to stop down the lens. It is also used for stop-down metering with non-AI Nikkor lenses.



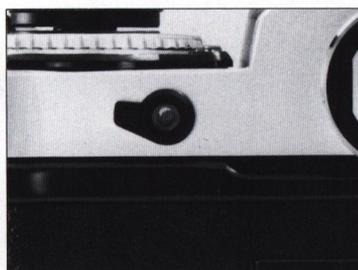
## Meter Switch/Film Advance Lever

The film advance lever switches meter off and locks the shutter release button when flush to the camera. At 30° standoff position, shutter is unlocked and light meter is turned on. Single stroke film advance has 135° winding angle.



## Shutter Speed Dial

Large, knurled dial locks at "AUTO" for aperture-priority automatic exposure control. Center button unlocks dial for setting any manual speed from 8 - 1/1000 sec. Flash sync at 1/125 sec., marked in red. M90 (1/90 sec.) setting and "B" for time exposures are mechanically controlled.



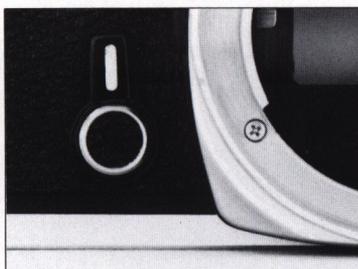
## LED Battery Check

LED lights if battery power is sufficient to power camera when lever is turned. Mirror will remain up as an additional low power warning.



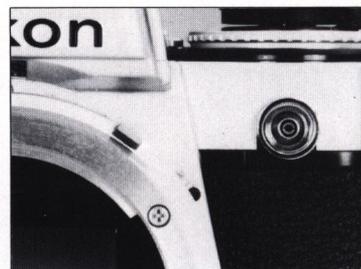
## Interchangeable Focusing Screens

The standard Nikon K screen, with split-image rangefinder, microprism collar and matte/Fresnel outer field can be quickly removed by pressing the latch at the top of the mirror box. Optional Nikon focusing screens for the FE include Type B, with 12mm matte focusing spot for close-up or telephoto work and the Type E screen with horizontal and vertical grid for architectural or copy work. (The same screens may be used in the Nikon FM2.)



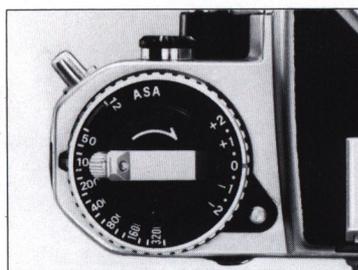
## Exposure Memory Lock/Self-Timer

To set self-timer for 10 sec. firing delay, the lever is rotated counterclockwise. Timing cycle may be cancelled. Doubles as an exposure memory lock when lever is pushed towards the lens. This feature should be used in conjunction with the 12mm diameter metering reference circle on the focusing screen when the main subject is composed off center, or when a subject is backlit.



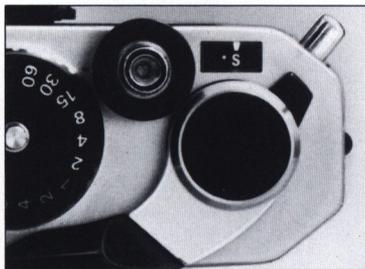
## Stopped-Down Metering

When mounting non-AI Nikkor lenses on the Nikon FE, first disengage the meter coupling lug with the small button on the lens mount. Then, lift the lever *before* mounting the lens. Although automatic exposures are maintained, metering is not at full aperture.



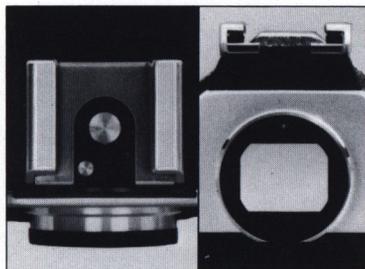
## Exposure Compensation Dial

Changes the automatic exposure up to  $\pm 2EV$  in 1/2-f/stop increments. Exposure compensation control is used when making more than one shot under difficult metering conditions, such as in snow scenes.



## Multiple Exposure Lever

Lever adjacent to film advance disengages transport mechanism for intentional multiple exposures. Excellent position allows for convenient motor-driven multiple exposures as well, with perfect frame registration. Frame counter does not advance.



## Dedicated Flash System

In addition to a PC terminal on the camera body, the FE provides an extra electrical contact on the hot shoe for dedicated operation with the appropriate Nikon Speedlight (SB-15, SB-10, SB-E, or SB-11 and SB-14 with SC-13 Extension Cord). When attached to the hot shoe and recycled, they automatically switch the camera's shutter to the proper sync speed (1/90 sec.) and activate an LED flash ready-light at the eyepiece.

## Technical Specifications: Nikon FE

- Type of Camera:** 35mm single-lens-reflex (SLR)  
**Picture Format:** 24mm x 36mm (standard 35mm size)  
**Lens Mount:** Nikon bayonet mount  
**Lenses:** More than 70 current Nikkor AI and Series E lenses  
**Shutter:** Vertical-travel, metal, focal plane, electronically-timed shutter  
**Shutter Release:** Mechanical; center-threaded shutter release button accepts AR-3 Cable Release; button locked when film advance lever is flush with camera body  
**Shutter Speed Settings:** Stepless, automatic shutter speed selection within a range of 8 sec. to 1/1000 sec.; manual shutter speeds for the 8 - 1/1000 sec. range plus "B" and M90  
**Film Advance Lever:** Single-stroke type; 30° stand-off angle and 135° winding angle; also serves as meter on/off switch  
**Self-Timer:** Set/cancel mechanical type provided; approx. 10-sec. shutter release delay; serves also as a memory-lock  
**Viewfinder:** Eye-level pentaprism type; 0.86X magnification with 50mm lens set at infinity; viewfinder coverage approx. 93% of picture field  
**Viewfinder Display:** Shutter speed indicated to the left within the viewfinder; lens aperture setting indicated in the viewfinder when lens in use is fitted with an aperture-direct-readout lens aperture scale  
**Focusing Screen:** Split-image microprism type (Type K) provided as standard; matte type (B) and matte with horizontal and vertical line etchings (E) also available; screens usable with Nikon FM2  
**Reflex Mirror:** Automatic quick-return non-lockable type  
**Depth-of-Field Preview Lever:** Provided  
**Multiple Exposure Lever:** Provided; disengages frame counter for correct count  
**Frame Counter:** Additive type (S.O.—36); automatically resets to "S" when camera back is opened  
**Film Rewind:** By crank after film rewind button is pressed  
**Flash Synchronization:** Built-in ISO-type hot shoe; threaded sync cord terminal provided for off-camera or multi-flash photography; synchronization with electronic flash units at speeds up to 1/125 sec.  
**Flash Ready-Light:** LED provided; located at the top of the eyepiece; lights when SB-15, SB-10 or SB-E Speedlight unit is attached and fully charged; LED blinks as a warning signal when manually set shutter speed is above 1/125 sec.  
**Exposure Metering:** Through-the-lens center-weighted full aperture exposure measuring system using a pair of SPDs (silicon photo diodes) and metering monolithic IC circuit  
**Metering Range:** EV 1 to EV 18 at ASA/ISO 100 and with f1.4 lens (i.e., from 1 sec. at f1.4 to 1/1000 sec. at f16)  
**Film Sensitivity Range:** ASA/ISO 12—ASA/ISO 4000  
**Exposure Compensation:** EV +2 to EV -2 (up to -1 at ASA 4000; up to +1 when set at 12)  
**Exposure Memory Lock:** Provided by self-timer lever  
**Power Source:** Choice of one 3V lithium battery, two 1.55V silver-oxide batteries, or two 1.5V alkaline-manganese batteries; optional Anti-Cold Battery Holder DB-2 accepting two AA-type penlight batteries available  
**Exposure Meter Switch:** Set film advance 30° to standoff position  
**Battery Check:** LED provided  
**Camera Back:** Pops open when the film rewind knob is lifted as the camera back lock is pushed; detachable and interchangeable with Nikon Data Back MF-12; memo holder provided  
**Dimensions (W x H x D):** 5.6" x 3.5" x 2.3"  
(142 x 89.5 x 57.5mm)  
**Weight:** 20.8 oz. (590g)  
**Product Number:** 1621 (chrome)/1625 (black)

Specifications subject to change without notice.



## Nikon Motor Drive MD-12

The Nikon MD-12 Motor Drive couples directly to the baseplate of the Nikon FE, as well as the Nikon FM and FM2 cameras. There are no body caps to remove or lose. Its two-position mode selector switch surrounding the release button can be set at "S" for single frame auto film advance or "C" for continuous operation at up to 3.5 frames-per-second (3.2 fps with Nikon FM2). The MD-12's on/off switch is used to turn on the camera meter, while slight pressure on the motor's release button activates the viewfinder LED display. A set of eight AA-type penlight batteries can power as many as 100 36-exposure rolls of film through the camera at its maximum firing rate. And the motor itself provides an excellent hand grip for improved camera balance. The MD-12 has a built-in electronic terminal to connect a variety of Nikon remote control accessories such as the MT-1 Intervalometer, ML-1 Modulite Control Outfit or MW-1 Wireless Radio Control Outfit. See Page 1 of the SLR Accessories Section for complete information on each of these accessories.



## Nikon Data Back MF-12

The standard back cover of the Nikon FE can be interchanged with the MF-12 Data Back to record the date (year/month/day), time (day/hour/minute) or two-digit numerical reference number directly on the lower right-hand corner of the picture frame. The information is recorded in red with color film. The MF-12 features an accurate quartz-timed clock with liquid crystal display, which has been programmed to automatically adjust the date until the year 2100. The data back is synchronized with the shutter via the camera's PC terminal. Optional accessories include the Battery Holder DB-3 for cold weather operation and the CF-15D Camera Case base. Perfect for scientific photography, fast action, even new parents.

### Technical Specifications: Nikon Motor Drive MD-12

- Cameras Usable:** Nikon FE, Nikon FM and Nikon FM2 screw-on type connection via tripod socket
- Framing Speed:** Up to approx. 3.5 frames-per-second (fps) at a shutter speed of 1/125 sec. or faster, progressively slower rates at lower shutter speeds, automatically
- Usable Shutter Speeds:** 8 to 1/1000 sec. plus M90 in both automatic and manual modes
- Power Source:** 8 AA-type 1.5V penlight batteries housed in integral battery chamber; set of alkaline batteries will last for approx. 100 36-exposure rolls of film
- Pilot Lamp:** Built-in LED-type; switches on during operation and when the film supply is exhausted
- Remote Control Operation:** Terminal provided for optional accessories
- Dimensions (W x D x H):** 5.7" x 2.7" x 4.3" (144 x 68.5 x 109.5mm)
- Weight:** 14.5 oz. (410g)—without batteries
- Product Number:** 102

### Technical Specifications: Nikon Data Back MF-12

- Usable Cameras:** Nikon FM2, Nikon FM, Nikon FE
- Attachment:** Interchangeable with regular camera back
- ASA/ISO Film Speeds:** Black and White: ASA/ISO 100-400; Color: ASA/ISO 25-400
- Film Speed Selection:** 3 steps via selector
- Data Imprinting:** Via 6 digit 7 segment LEDs on pressure plate; data imprinting in lower right-hand corner of frame at instant of exposure
- Data:** Year-Month-Day, Day-Hour-Minute, or any one or two digit number up to 99
- Data Selection and Setting:** Possible with three buttons (ADJUST, SELECT, CHANGE); dating available until 2100, automatic adjustment of year change
- Size of Imprinted Data:** Letter height 0.5mm, total width of letter display 6.6mm
- ON/OFF Switch for Data Imprinting:** Provided
- Data Imprinting Confirmation:** LED indicator blinks if data is imprinted. This LED also indicates exhausted batteries
- Data Display:** Via 6 digit 7 segment LCD on display panel
- Timing:** Quartz oscillator
- Timing Accuracy:** ±15 seconds per month without adjustments for irregular months or leap years
- Power Source:** Two 1.55V silver-oxide batteries
- Dimensions (H x W x D):** 2.1" x 5.6" x 1" (53 x 142.5 x 26mm)
- Weight:** 2.6 oz. (75g) without batteries
- Accessories:** Battery Holder DB-3 accepting two AAA-type penlight batteries; Camera Case Base Portion CF-15D
- Product Number:** 4412

Specifications subject to change without notice.



## Programmed For Today's Photographer.

- Programmed exposure for the easiest picture-taking possible.
- Aperture-priority for creative control on automatic.
- Full manual operation with the added advantage of quartz-timed shutter speeds and a coupled light meter.
- Advanced TTL flash metering with the Nikon Speedlight SB-15.
- SONIC™ warning system helps prevent bad pictures.
- Accepts motor drive, data back, and most Nikon SLR system accessories including nearly 70 AI-Nikkor and Nikon Series E lenses.
- Compact, lightweight, and energy efficient; built to Nikon's high quality standards.

The Nikon FG has everything today's photographer needs—programmed automation, aperture-priority automation and full metered manual exposure control.

In its programmed mode, the

Nikon FG automatically and instantaneously sets the ideal combination of lens aperture and shutter speed. The FG also provides automatic aperture priority exposure control, choosing a stepless, electronically-timed shutter speed to correspond to the available light and selected lens opening. On manual, the photographer is in full control, setting the quartz-timed shutter speed and aperture. For added camera control during automatic operation, the Nikon FG offers a +2 stop auto-exposure override control in addition to an exposure compensation dial with up to  $\pm 2$  EV in 1/2-stop increments.

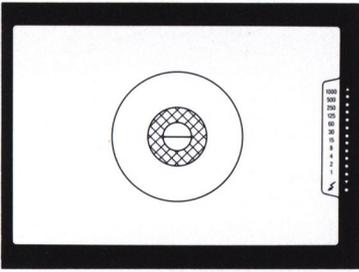
To alert the photographer to possible picture taking errors the FG incorporates Nikon's SONIC™ alarm system with an audible "BEEP." The sound may be cancelled if desired.

The electronic sophistication of the Nikon FG is highlighted by TTL flash automation with the new Nikon Speedlight SB-15. (See Flash Section, Page 2, for complete information.) When the SB-15 is attached to the hot shoe and switched on, the FG's shutter speed is automatically ad-

justed to the proper X-sync speed (1/90 sec.) from either automatic mode or manually set shutter speed of 1/125 sec. or faster. If the manual shutter speed is 1/60 sec. or slower, the camera will continue to operate at the set speed. When the flash is charged, an LED flash ready-light glows in the viewfinder. If there is insufficient flash output for a proper exposure or if something is incorrectly set, the "thunderbolt" ready-light symbol blinks as a warning.

For fast action photography the Nikon FG accepts the 2-speed MD-14 Motor Drive as well as the MD-E Motor Drive. The FG's back cover can be interchanged with the MF-15 Data Back. Plus, virtually all Nikon system accessories can be used with the Nikon FG.

To ensure that the Nikon FG will perform reliably even after extensive use, it is computer tested and retested. The FG is built on a durable die-cast metal chassis and incorporates a metal shutter, too, as do all Nikon cameras. As a final touch, a detachable handgrip has been added for secure, comfortable handling.



## Viewfinder

LEDs in the viewfinder will blink at 60 and 125 indicating that the shutter speed is automatically set at 1/90 sec., until frame #1.

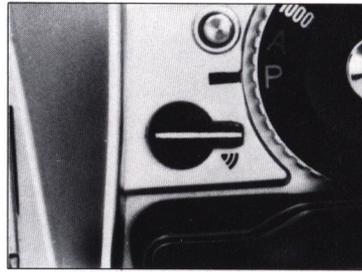
**Programmed mode:** LED opposite camera selected shutter speed lights\*; top or bottom LED triangle blinks as out-of-metering range warning; both top and bottom triangles blink alternately\*\* if lens is set at an aperture wider than f11.

**Aperture priority mode:** LED opposite camera selected shutter speed lights\*; if top or bottom LED triangle blinks adjust aperture as necessary.

**Manual mode:** The set shutter speed LED lights while the camera recommended speed blinks.

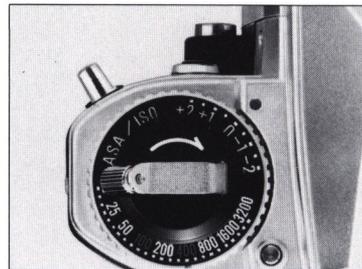
\*Note: When two LEDs light simultaneously, FG is selecting an intermediate shutter speed.

\*\*Note: Modified AI-Nikkor lenses do not provide this function.



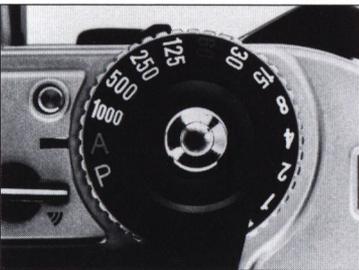
## SONIC™ Warning System

The Sound and Optical Nikon Indicator Circuits in the Nikon FG sound an audible "BEEP" when the exposure is either beyond the camera's metering range (above 1/1000 sec.) or if the shutter speed falls below 1/30 sec. in the programmed or aperture priority mode. A simple lever can be turned to disengage the SONIC™ system.



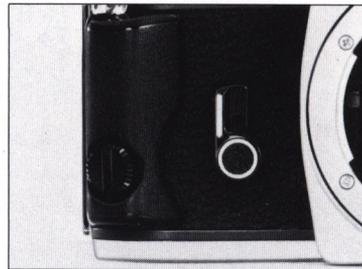
## Auto Exposure Overrides

The Nikon FG is equipped with two systems to override (bias) the automatic exposure. The exposure compensation dial can be set in 1/2 stop increments from +2 EV to -2 EV to compensate for unusual lighting conditions. The exposure compensation button on the front of the camera increases the exposure by two stops to properly expose a backlit subject, or a dark subject against a white background.



## Shutter Speed/Mode Selector

Dial locks at "P" for programmed automation and "A" for aperture-priority automatic exposures. Full range of quartz-timed shutter speeds on manual from 1 to 1/1000 sec. plus a mechanically controlled "B" setting for time exposures. M90 is a mechanically controlled 1/90 sec. Pressing the threaded shutter release button halfway down activates meter. The meter remains on for approximately 16 sec. after the button is released. Film advance lever is ratcheted to advance film in a single or multiple strokes.



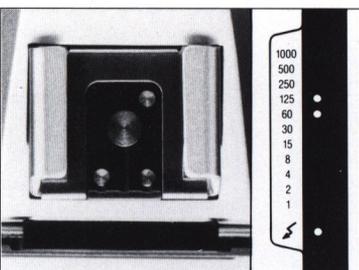
## Handgrip

The Nikon FG is designed for comfort. Besides being compact and lightweight, there's a handgrip attached to the front which gives the photographer a secure and comfortable hold while improving overall camera handling. The grip is removable for coupling the MD-14 or MD-E motor drives to the camera.



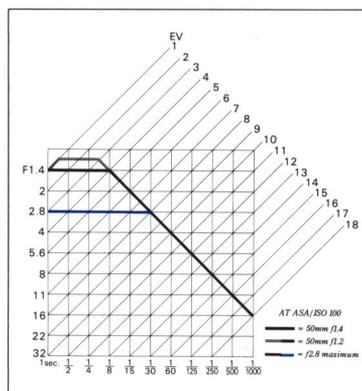
## Self-Timer

Mechanical self-timer provides 10 sec. delay and can be cancelled. White index mark on lever is highly visible at a distance.



## TTL Flash Automation

Three of the four electrical contacts on hot shoe serve to activate LED viewfinder flash ready-light, signal automatic cutoff of flash output, confirm TTL flash measurement, set proper sync speed and transfer exposure data with the Nikon Speedlight SB-15. "Thunderbolt" LED in viewfinder lights when flash is ready to fire, blinks after firing to indicate insufficient exposure. Nikon flash units SB-10 and SB-E, as well as Speedlights SB-11 and SB-14 (with SC-13 cord) provide automatic sync speed and ready-light only.



## Exposure Program Graph

Through intensive statistical and empirical studies, optimum aperture and shutter speed combinations have been programmed into the Nikon FG's computer to provide greater depth-of-field along with the highest possible shutter speeds. At ASA 100, exposures range from 1 sec. at f1.4 to 1/1000 sec. at f16.

## Technical Specifications: Nikon FG

**Type of Camera:** Electronically controlled 35mm single-lens reflex

**Picture Format:** 24mm x 36mm (35mm film format)

**Lens Mount:** Nikon bayonet mount

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

**Shutter Speeds:** Stepless speeds 1-1/1000 sec. on "P" (Programmed) and "A" (Automatic) modes; 11 speeds 1-1/1000 sec. on Manual; mechanically controlled, 1/90 sec. at M90 setting and long exposure at B setting

**P (Programmed) Mode Exposure Control:** Light intensity feed-back type; shutter speed and aperture set automatically and steplessly

**A (Automatic) Mode Exposure Control:** Aperture-priority type; aperture set manually while shutter speed set automatically and steplessly

**Manual Mode Exposure Control:** Both aperture and shutter speed set manually. Quartz shutter speed timing

**Viewfinder Information:** Shutter speed scale with LED display, exposure warning signal, ready-light when used with speedlight

**Exposure Meter:** TTL center-weighted full-aperture measurement; meter incorporates one silicon photo diode (SPD)

**Metering Range:** EV 1 to EV 18 (i.e., f1.4 at 1 sec. to f16 at 1/1000 sec. at ASA/ISO 100 and with 50 mm f1.4 lens)

**Film Speed Range:** ASA/ISO 12-3200

**SONIC™ Warning System:** "Beep-beep" warning sound activated when shutter release button is pressed halfway if shutter speed is approx. 1/30 sec. and below, or approx. 1/1000 sec. and above; can be turned off via audio warning lever

**Exposure Compensation Dial:** +2EV -2EV in 1/2-stop increments

**Exposure Compensation Button:** Approx. +2EV when button is kept depressed as shutter is released

**Viewfinder:** Fixed eyelevel pentaprism type with built-in TTL exposure meter; approx. 92% frame coverage

**Focusing Screen:** Fixed-type Nikon standard K-type screen; comprises matte/Fresnel field and central split-image rangefinder spot surrounded by microprism collar and 12mm-dia. reference circle which denotes area of center-weighted metering

**Finder Magnification:** 0.84X (50mm lens set at infinity)

**Film Advance:** Via hinged type lever; wound by single stroke or series of shorter strokes; 144° winding angle

**Frame Counter:** Shows number of frames exposed; automatically resets to "S" when camera back is opened

**Film Rewind:** Via film rewind crank rotated after rewind button is depressed

**Hot Shoe Contact:** Standard ISO-type; accepts SB-15 or other ISO-type Nikon Speedlights directly

**Flash Synchronization:** Speeds of up to 1/90 sec. with electronic flash; with SB-15, SB-10 or SB-E, flash sync speed is automatically set to 1/90 sec. when shutter speed/mode selector is set at "P", "A" or 1/125-1/1000 sec. setting; while at 1-1/60 sec. setting, the shutter will operate at set speed

**Ready-Light:** Incorporated in the viewfinder

**Camera Back:** Swings open when film rewind knob is pulled up; memo holder provided; interchangeable with the MF-15 Data Back

**Self-Timer:** Lever provided can be set for up to approx. 10 sec. exposure delay; setting cancellable before actual shutter release

**Reflex Mirror:** Instant-return non-lockable type

**Handgrip:** Detachable type

**Power Source:** Two 1.55V silver-oxide batteries (S-76 or SR-44 type), two 1.5V alkaline-manganese batteries (LR-44 type) or one 3V lithium battery (CR-1 3N type)

**Power ON/OFF Switch:** Meter switched on when shutter release button is pressed halfway; stays switched on for approx. 16 seconds after finger is lifted off button

**Dimensions (W x H x D):** 5.4" x 3.4" x 2.1"  
(136 x 87.5 x 54mm)

**Weight:** 17.3 oz. (490g)

**Product Number:** 1701 (chrome)/1702 (black)



## Nikon Motor Drive MD-14

The programmed Nikon FG accepts two motor drives, the 2 frames-per-second (fps) MD-E, or the MD-14 which can advance film through the camera at 3.2 fps on its High setting or 2 fps on Low. The motors mount directly after the FG's hand-grip has been removed, and sport their own contoured grip for comfortable, well-balanced handling. The FG's shutter release button is used to trigger the motor for auto winding. The MD-14 Motor Drive can also be used with the Nikon EM.



## Nikon Data Back MF-15

The standard back cover on the Nikon FG is removable and can be interchanged with the Data Back MF-15 for imprinting pertinent information directly onto the film. The MF-15 provides three different display modes for date (year/month/day), time (day/hour/minute) or any four digit sequence up to 2000, as seen on the liquid crystal display. The data is recorded at the lower right-hand corner of the picture frame in unobtrusive red numerals when using color film. Additionally, a quartz timer has been built in so this data back also functions as an alarm clock, a handy accessory for travelers.

### Technical Specifications: Nikon Motor Drive MD-14

**Cameras Usable:** Nikon FG and EM; screw-on type connection via tripod socket  
**Framing Speed:** Up to 3.2 fps at High setting or 2 fps on Low at shutter speeds of 1/125 sec. or faster  
**Shooting Control:** Via camera's shutter release button  
**Automatic Winding Stop:** Motor shuts off at film's end with LED indication  
**Number of 36-exp. Rolls per Fresh Battery Set:** More than 50 at normal temperature with alkaline batteries  
**Power Source:** Eight 1.5V AA penlight batteries  
**Dimensions (W x H x D):** 3.6" x 5.5" x 2.5"  
 (91.5 x 140 x 64mm) excluding grip  
**Weight:** 12.3 oz. (350g) without batteries  
**Product Number:** 114

### Technical Specifications: Nikon Data Back MF-15

**Usable Camera:** Nikon FG, with or without motor drive  
**Usable Film Speed Setting:** ASA/ISO 25—400 for color films  
 ASA/ISO 100—400 for B&W films  
**Adjustment:** By 3-position switch:  
 1) B&W 100-400, Color 25-64  
 2) Color 80-160  
 3) Color 200-400  
**Data Imprint Type:** By 7-segment, 6-digit red LEDs  
**Imprint Data:** Date (Year/Month/Day), Time (Day/Hour/Minute) or frame counter number up to 2000; time mode is underlined for identification from date mode  
**Imprint Area:** Red numerals at lower right-hand corner of picture frame; can be switched off  
**Audible Alarm:** 20 sec. alarm at the time set  
**Imprint Signal:** Via direct contacts in camera body  
**Data Display:** By liquid crystal display (LCD)  
**Display Indications:** "AL": lit when alarm mode is on; "PRINT": blinks when imprint ON/OFF switch is on; "NO": lit when film counter on; "L", "M" or "H": film speed indicator  
**Data Adjustment:** By 6 operational buttons  
**Operational Buttons:** "P" key; select imprint or not  
 "MODE" key; select imprint mode  
 "FS" key; change film speed  
 "CR" key; adjust or not, and select which digit to change  
 Two keys for single or fast forwarding of numbers  
**Power Source:** Two 1.55V silver-oxide batteries; LCD blinks to indicate battery drain  
**Dimensions (W x H x D):** 5.4" x 2.1" x 1"  
 (136 x 53.5 x 26.5mm)  
**Weight:** 3 oz. (85g)  
**Product Number:** 4516

Specifications subject to change without notice.



## Nikon's Best Selling Automatic SLR

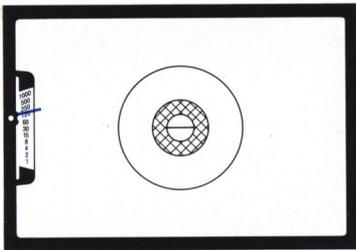
- Aperture-priority automatic—just focus and shoot.
- SONIC™ warning system helps prevent bad pictures.
- Automatic backlight compensation control.
- Dedicated automatic flash with Nikon Speedlight SB-E.
- Accepts Nikon MD-E and MD-14 motor drives and most Nikon SLR system accessories.
- Extremely compact and lightweight with stylish design.

The affordable Nikon EM shares many common design features with Nikon's more advanced SLR cameras. It incorporates a rugged metal die-cast chassis and metal-bladed shutter, state-of-the-art electronics and microprocessor chips, and even gold-plated electrical contacts for maximum reliability. Still, the Nikon EM is as easy to use as "focus and shoot". Its aperture-priority system for automatic exposure control sets the precise stepless shutter speed for the selected lens aperture and surrounding light conditions. And it's still automatic with any lens attached, even a bellows unit or telescope. Both depth-of-field and shutter speed are controlled and adjusted by the lens aperture ring. Plus, the EM's SONIC™ warning system sounds an audible "beep" if the light's not right, to help prevent taking a bad picture.

The convenience of using the Nikon EM begins when loading film. A special circuit prevents the mirror from staying up during a long time exposure if the camera is loaded with

a lens cap on. The meter begins to function at frame #1, and light pressure on the shutter release button activates the viewfinder shutter speed display for approximately 20 seconds. An exposure compensation button adjusts the automatic exposure when photographing backlit subjects. And the self-timer lets the photographer get into the picture. The EM's dedicated electronic flash system, in combination with the Nikon Speedlight SB-E (see Flash Section, Page 7, for complete information), provides for precise flash photography. With the EM on AUTO, the SB-E flash automatically programs the shutter to the proper X-sync speed (1/90 sec.) and activates an LED viewfinder flash ready-light. If an aperture outside the auto flash range has been set on an AI-Nikkor or Series E lens, the LED blinks to warn the user.

The Nikon EM accepts the MD-E Motor Drive for auto film advance at up to 2 frames-per-second as well as the MD-14 Motor Drive and most Nikon SLR system accessories.



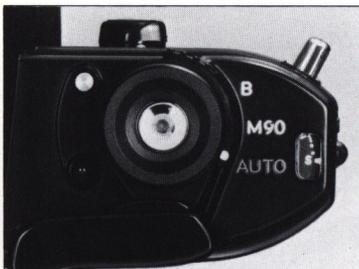
## Viewfinder

Bright viewfinder with non-interchangeable Nikon Type K focusing screen shows shutter speed display and LED flash ready-light.



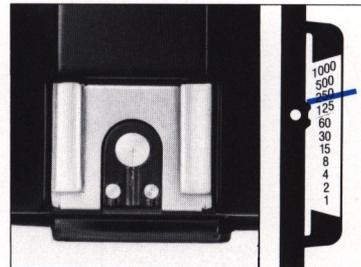
## Backlight Control

The backlight control button increases the automatic exposure by two stops. It's used when photographing backlit subjects. While there is no exposure compensation dial, the same effect can be had by adjusting the EM's ASA/ISO dial.



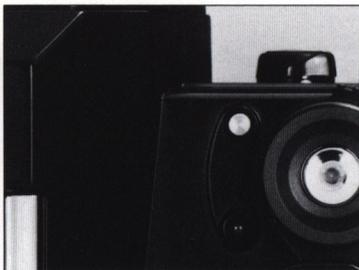
## Shooting Mode Selector

AUTO position for stepless shutter speeds from 1-1/1000 sec.; M90 is mechanically-controlled 1/90 sec. shutter speed in the event of battery failure. Mechanical "B" setting allows for time exposures without battery drain.



## Dedicated Flash System

With its companion Nikon Speedlight SB-E flash, the EM provides virtually mistake-proof flash photography. Electrical contacts on camera hot-shoe transmit ASA/ISO and aperture data from camera to flash. When switched on, the SB-E programs the shutter to X-sync speed (1/90 sec.) and activates the LED flash ready-light. LED blinks if incorrect lens aperture has been set. See Flash Section, Page 7, for complete information on the Speedlight SB-E.



## Battery Check

To check battery condition, press check button to light red LED.



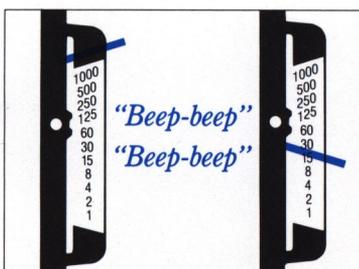
## Self-Timer

Mechanical self-timer provides 10 sec. delay, and may be cancelled. Moving white index mark is highly visible even at a distance.



## Meter Switch/Shutter Release

Depressing shutter release halfway activates light meter; remains on for approximately 20 sec. and shuts off automatically. Release button is threaded to accept standard cable release.



## SONIC™ Warning System

The Sound and Optical Nikon Indicator Circuits sound an audible "BEEP" when the exposure is either beyond the camera's metering range (above 1/1000 sec.) or if the automatic shutter speed falls below 1/30 sec. It helps prevent overexposures and blurred pictures.

# Nikon EM Accessories

## Technical Specifications: Nikon EM

- Type of Camera:** Automatic 35mm single-lens-reflex (SLR)  
**Picture Format:** 24mm x 36mm (35mm film format)  
**Lens Mount:** Nikon bayonet mount  
**Shutter:** Electronically controlled, vertical-travel, metal focal-plane shutter  
**Shutter Speeds:** Stepless speeds from 1 sec. to 1/1000 sec. when shutter mode selector is set to AUTO; 1/90 sec. mechanical shutter speed when set to M90; B setting also provided for long exposures  
**Film Advance:** Completed stroke of 144° simultaneously advances film, cocks shutter and operates frame counter; choice of one continuous stroke or series of shorter strokes  
**Viewfinder:** Fixed eyelevel pentaprism full-aperture viewing type with built-in TTL exposure meter; finder coverage approx. 92% of picture field  
**Viewfinder Information:** Shutter speed scale and exposure needle visible; ready-light lights up when SB-E or SB-15 Speedlight is in use; center of scale's bracket indicates 1/90 sec.  
**Finder Magnification:** 0.86X magnification with 50mm lens set at infinity  
**Focusing Screen:** Fixed-type Nikon "K" screen; comprises matte/Fresnel field with central split-image rangefinder spot surrounded by microprism ring and 12mm-dia. reference circle which denotes area of center-weighted metering  
**Reflex Mirror:** Instant-return, non-lockable type  
**Self-Timer:** Lever can be set for up to approx. 10-sec. exposure delay; setting cancellable  
**Exposure Measurement:** TTL center-weighted exposure metering at full aperture; meter incorporates one silicon photo diode (SPD)  
**Metering Range:** EV 2 to EV 18 (i.e., f2 at 1 sec. to f16 at 1/1000 sec.) at ASA 100 and with 50mm f1.8 lens  
**SONIC™ Warning Signal:** "Beep" warning sound activated when shutter release button is pressed to fingerguard position if matching shutter speed for lens aperture set is below approx. 1/30 sec. or above 1/1000 sec.  
**Exposure Compensation:** +2 EV when exposure compensation button is depressed as shutter is released  
**Power Source:** Two 1.5V silver-oxide batteries (S-76 type) or one 3V lithium battery (R-3N)  
**Meter ON/OFF Switch:** Meter switched on when shutter release button is pressed; stays switched on for several seconds after finger is lifted off button  
**Battery Check:** LED lamp lights up to indicate sufficient power availability when power check button is pressed  
**Film Speed Range:** ASA 25-1600  
**Frame Counter:** Shows number of frames exposed; automatically resets to "S" when camera back is opened; automatic operation starts from frame 1  
**Film Rewind:** Manual; film rewind crank rotated after film rewind button is depressed  
**Flash Synchronization:** Built-in ISO-type hot shoe; automatic flash sync at 1/90 sec. with SB-E or SB-15 Speedlight Unit. Activates camera's ready-light when flash operation is ready; ready-light "blinks" to signal incorrect ASA or aperture setting; M90 shutter mode selector setting used with other electronic flash units, providing flash sync at 1/90 sec.; bulb-type units not usable  
**Camera Back:** Swings open when film rewind knob is pulled up; memo holder provided  
**Dimensions (W x H x D):** 5.3" x 3.4" x 2.1" (135 x 86 x 54mm)  
**Weight (body only):** 16.2 oz. (460g)  
**Product Number:** 1706

Specifications subject to change without notice



## Nikon Motor Drive MD-E

The Nikon EM camera is capable of auto film advance at about two frames-per-second when attached to the MD-E motor drive. It couples directly to the camera with no caps to remove, store or lose. Simply turn the motor on and press the EM's shutter release button. The motor automatically advances the film at the end of each exposure. Or hold the release button for continuous shooting at the maximum firing rate. The MD-E incorporates a built-in handgrip and provides excellent balance when mounted on the EM. The Nikon EM may also be used with the MD-14 motor drive for the Nikon FG (see SLR Camera Section, Page 25, for additional information) for motorized operation at over three frames per second.

## Technical Specifications: Nikon Motor Drive MD-E

- Camera Usable:** Nikon EM and FG  
**Shooting Control:** Camera's shutter release button  
**Firing Speed:** Approx. 2 frames-per-second at shutter speeds of 1/90 sec.—1/1000 sec.  
**Shooting Modes:** Single frame, or continuous  
**Usable Shutter Speed Range:** Automatic speeds from 1 sec.-1/1000 sec., M90 and B  
**Operation Indicator:** LED pilot lamp "blinks" when motorized shooting is in progress; lamp remains continuously lit when roll of film is exhausted, and motor automatically stops  
**Power Switch:** ON/OFF positions provided  
**Power Source:** Six 1.5V AAA-type penlight batteries installed in built-in battery chamber  
**Number of Rolls:** More than 50 rolls of 36-exposure film per fresh set of AAA-type alkaline-manganese batteries when used under normal temperatures  
**Dimensions (W x H x D):** 5.2" x 1.3" x 1.8" (133 x 32 x 46mm); motor drive grip 3.2" (H) (82mm)  
**Weight:** 6.5 oz. (185g without batteries)  
**Product Number:** 110

Specifications subject to change without notice



## Offers Photographers The Best Trade-Up Features.

- **High-speed titanium shutter provides top speed of 1/4000 sec. and X-synch at 1/250 sec.**
- **Versatile aperture-priority automatic exposure control.**
- **Match-needle manual exposures with the added accuracy of quartz-timed shutter speeds.**
- **Provides automatic through-the-lens (TTL) flash metering.**
- **Full-information viewfinder incorporates new, extra-bright interchangeable focusing screen**
- **Accepts data back, motor drive and virtually all Nikon-system accessories.**

The Nikon FE2 combines the latest advances in photographic technology with a time-proven body design for the utmost in performance. A Nikon-designed high-speed titanium shutter provides a range of shutter speeds from eight full seconds to 1/4000 sec. On automatic, the speeds are stepless and electronically timed, while digital quartz timing ensures consistent shutter-speed accuracy in manual. Synchronization with electronic flash is now possible at all speeds up to 1/250 sec.

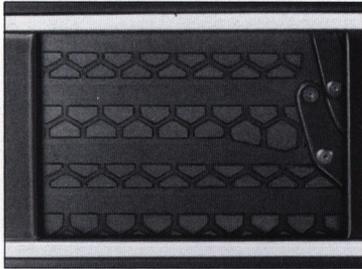
The FE2 features a full-information viewfinder, which displays all camera functions. The shutter-speed scale has a green needle to confirm automatic operation or indicate the manually-selected shutter speed. A black needle moves to point to the metered speed. The window at the top shows the set lens aperture, and an LED on the right side lights to remind the user when the exposure compensation dial has been switched from its normal position. A new chemical process applied to the interchangeable focusing screen delivers about one stop more light so subjects literally snap into focus.

An energy-saving meter switch is built into the oversized shutter-release button. Moving the film-advance lever to its 30° standoff position unlocks the shutter release, and slight pressure on it activates the meter for 16 seconds. The FE2 is operable without batteries when the shutter speed dial is set to the "M250" position for mechanical shutter firing at 1/250 sec. To bias the meter for unusual lighting conditions the exposure compensation dial can be set from +2EV to -2EV in 1/3-stop increments. And, on automatic, the FE2's exposure memory lock can be used to properly expose a subject standing near the edge of the frame. Because the memory lock freezes the automatic shutter-

speed setting, photographers can quickly bracket exposures by changing the aperture. The FE2 also features a depth-of-field preview lever, electronic quartz-timed self-timer and multiple exposure lever.

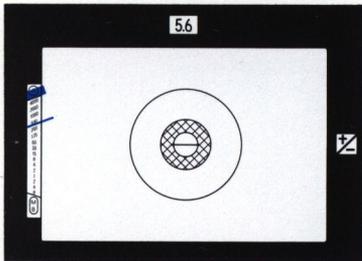
The camera also incorporates automatic through-the-lens (TTL) flash metering. A light sensor at the bottom of the FE2 camera body measures the precise amount of light striking the film and automatically controls flash output. When the Nikon Speedlight SB-15 or SB-16B is mounted on the FE2's hot shoe, turned on and recycled, the camera's shutter is automatically switched to 1/250 sec. X-synch speed from the AUTO mode or any manual speed of 1/500 sec. or faster. At slower speeds, the shutter fires at the set speed while TTL flash control is maintained. An LED at the top of the eyepiece lights to confirm that the flash is charged. This same LED will blink after an exposure if the flash emits its full light output, signalling an under-exposure may occur. The FE2 also has a standard PC terminal. The FE2 can be adapted for true motor-drive operation by directly coupling the MD-12 Motor Drive. To imprint the date or time onto the film, the FE2 accepts either the MF-12 or MF-16 Data Back. Backed by the Nikon system of lenses and accessories, the FE2 offers limitless photographic possibilities.

# Nikon FE2



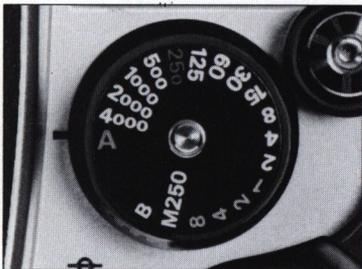
## High-Speed Titanium Shutter

The vertically-travelling titanium shutter curtains traverse the film gate at nearly twice the speed of conventional shutters, a mere 3.3 milliseconds. This all but eliminates image distortion, a phenomenon common to focal plane shutters. The etched, modified honeycomb-pattern titanium used in the curtains assures great durability and a more than 50% reduction in shutter mass, so there's virtually no camera shake in hand-held shooting. Shutter travel is stable and a wide, 1.8mm slit width at 1/4000 sec. virtually eliminates any chance of uneven exposures.



## Full-Information Viewfinder

Nonobstructed viewfinder shows Aperture-Direct Readout at top; shutter-speed scale has green bar to show auto mode or manually set shutter speed; moving needle indicates metered speed and over/under-exposure warning. When exposure compensation dial is switched from normal "O" position, LED at right lights.



## Shutter-Speed Dial

Large knurled dial locks at "A" position for aperture-priority automatic exposure control. Center button unlocks dial to set any quartz-timed manual speed from 8-1/4000 sec., plus B. Flash sync is marked in red at "250." In the event of battery failure, set dial at "M250" to drop mirror and fire shutter mechanically at 1/250 sec.



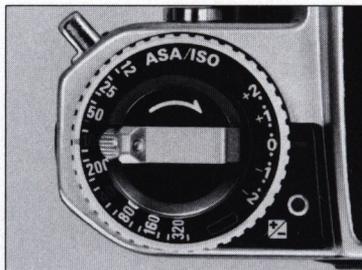
## TTL Flash Metering

When used with the Nikon Speedlight SB-15 or SB-16B, the silicon photo diode at base of mirror box measures flash illumination directly off the film plane during the exposure. These units automatically program the camera's shutter to the proper X-synch speed (1/250 sec.) from the AUTO mode or manual speed above 1/250 sec. and activate the FE2's LED flash ready-light at the top of the eyepiece. LED blinks after exposure if full light output may result in underexposed flash exposure. Lens may be set at any aperture from f2 to f22, depending on subject distance.



## Interchangeable Focusing Screens

The extra-bright K2 focusing screen supplied with the FE2 has central split-image range-finder spot and micro-prism collar with 12mm diameter center-weighted metering sensitivity area. To remove, press the latch at the top of the mirror box. Optional B2 screen with matte focusing spot or E2 with etched horizontal and vertical grid lines are available for the FE2, FM2 and FE cameras. New screens may be used in FM2 and FE with exposure compensation.



## Exposure Compensation

Biases the automatic or manual meter reading from +2EV to -2EV in precise 1/3-stop increments. Chrome button releases dial. Warning signal lights in the viewfinder to remind user that the dial has been moved from its normal position.



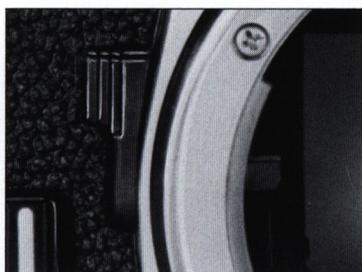
## Self-Timer/Exposure Memory Lock

To set self-timer for 10-second firing delay, the lever is rotated counterclockwise. Timing cycle may be cancelled. Lever doubles as an exposure memory lock. When pushed towards the lens mount, the automatic shutter-speed setting is held. This permits photographing a subject near the edge of the frame after taking a proper, center-weighted meter reading. It also allows fast bracketing on automatic by changing the aperture.



## Meter Switch/Release Lock

Film advance lever unlocks shutter release button when offset 30° from camera body. Energy-saving meter switch is activated by light pressure on shutter release and turns off automatically 16 seconds after pressure is removed. Accepts standard threaded mechanical cable release.



## Depth-of-Field Preview

Depth-of-field preview lever enables visual determination of actual overall range of sharp focus by stopping down the lens to its set aperture.



## Multiple-Exposure Lever

Lever adjacent to film advance disengages transport mechanism for intentional multiple exposures. Film registration is well maintained even while one makes multiple exposures with a motor drive. Frame counter does not advance.

## Technical Specifications: Nikon FE2

**Type of Camera:** Electronically-controlled 35mm SLR

**Picture Format:** 24mm x 36mm (standard 35mm format)

**Lens Mount:** Nikon bayonet mount

**Lenses:** AI-Nikkor and Nikon Series E lenses; Non-AI lenses cannot be mounted

**Shutter:** Electronically-controlled, vertical-travel metal focal plane shutter with titanium curtains

**Shutter Release:** Mechanical: on Auto/Manual; center-threaded shutter-release button accepts AR-3 Cable Release; button locked when film-advance lever is flush with camera body; Mechanical backup shutter release: M250 (1/250 sec.) and B

**Meter Switch:** Pressing shutter-release button halfway down switches meter on; meter stays on for 16 seconds then automatically switches off; meter turned off when shutter speed dial is set at M250 or B

**Exposure Control:** Aperture-priority automatic exposure control with shutter speed dial set on A; manual exposure control by turning shutter speed dial and/or lens aperture

**Shutter Speeds:** On Auto: stepless speeds from 8 to 1/4000 sec.; on Manual: 16 quartz-timed speeds from 8 to 1/4000 sec., on Mechanical: M250 (1/250 sec.), B

**Film-Advance Lever:** Single-stroke type with 30° stand-off angle and 135° winding angle

**Viewfinder:** Fixed-eyelevel pentaprism type; 0.86X magnification with 50mm lens at infinity; 93% frame coverage

**Viewfinder Display:** Shutter speed scale with meter needle and shutter speed/exposure mode indicator bar and over-/underexposure warning area; aperture-direct readout of set f/number; LED exposure compensation mark lights when dial is off "0" position

**Focusing Screen:** Interchangeable matte Fresnel focusing screen with central split-image rangefinder spot and micro-prism collar (Nikon Type K2) as standard

**Reflex Mirror:** Automatic instant-return mirror

**Self-Timer:** Quartz-timed 10-sec. delay; may be cancelled

**Exposure Memory Lock:** Via self-timer lever

**Multiple Exposure Lever:** Provided

**Accessory Shoe:** Standard ISO type; hot shoe, ready-light, monitor and TTL control contacts provided

**Flash Synchronization:** On Auto: 1/250 sec.; On Manual: 1/250 sec. or lower, or at 1/250 sec. only when shutter speed dial is set between 1/500 sec. and 1/4000 sec.

**PC Terminal:** Provided; threaded

**Flash Ready-Light:** LED visible at top of eyepiece; lights up when SB-16B, SB-15, SB-E or SB-10 Speedlight is charged; blinks to warn of underexposure during TTL operation

**Exposure Metering:** Through-the-lens center-weighted full-aperture-exposure measuring system using two silicon photo diodes

**Metering Range:** EV 1 to EV 18 at ASA/ISO 100 with f1.4 lens

**TTL Flash Metering:** Photo cell at base of mirror box measures flash exposures off the film plane during TTL operation with SB-15 or SB-16B

**Exposure Compensation:** ±2EV in 1/3 increments

**Film Speed Range:** ASA/ISO 12 to 4000

**Frame Counter:** Additive type; automatically resets to "S" two frames before "0"; when camera back is opened; on Auto, shutter speed is 1/250 sec. until frame "1" is reached

**Power Source:** Choice of one 3V lithium battery, two 1.55 V silver-oxide batteries or two 1.5V alkaline-manganese batteries; optional Anti-Cold Battery Holder DB-2 accepting two AA-type penlight batteries available

**Battery Check:** By pressing shutter-release button halfway while looking through the viewfinder; if there is sufficient power, the black needle will move; if not, the black needle will remain at the bottom of the shutter-speed scale

**Depth-of-Field Preview Lever:** Provided

**Film Rewind:** By crank provided

**Camera Back:** Interchangeable with MF-12 or MF-16 Data Back; pops open when the film rewind-knob is pulled up as camera back lock is pushed counterclockwise; memo holder provided

**Dimensions (W x H x D):** 5.6" x 3.5" x 2.3"  
(142.5 x 90 x 57.5 mm)

**Weight:** 19.4 oz. (550g)

**Product Number:** 1630 (chrome)/1631 (black)

# Nikon FE2 Accessories



## Nikon Motor Drive MD-12

The Nikon MD-12 Motor Drive couples directly to the base plate of the Nikon FE2, as well as to the Nikon FE, FM and FM2 cameras. There are no body caps to remove or lose. Its two-position mode selector switch surrounding the release button can be set at "S" for single-frame auto film advance or "C" for continuous operation at up to 3.2 frames-per-second (3.5 fps with Nikon FE or FM). The MD-12's on/off switch is used to turn on the camera meter, while slight pressure on the motor's release button activates the viewfinder LED display. A set of eight AA-type penlight batteries can power approximately 100 36-exposure rolls of film through the camera. And the motor itself provides an excellent hand grip for improved camera balance. The MD-12 has a built-in electronic terminal to connect a variety of Nikon remote-control accessories such as the MT-1 Intervalometer, ML-1 Modulite Control Outfit or MW-1 Wireless Radio Control Outfit. See Page 1 of the SLR ACCESSORIES SECTION for complete information on each of these accessories.



## Nikon Data Back MF-16

The standard back cover of the Nikon FE2 is removable and can be interchanged with the Data Back MF-16 for imprinting pertinent information directly onto the film. The FE2 has direct internal electrical contacts that interface with the Data Back. The MF-16 provides three different display modes for date (year/month/day), time (day/hour/minute) or any four digit sequence up to 2000, as seen on the liquid crystal display. The data is recorded on the lower right-hand corner of the picture frame in unobtrusive red numerals with color print film or white on black and white pictures. Additionally, a quartz timer has been built in so the MF-16 Data Back can also function as an alarm clock, a handy accessory for the travelling photographer. The MF-12 Data Back, which is triggered through the FE2's PC terminal, may also be used.

## Technical Specifications: Nikon Motor Drive MD-12

- Cameras Usable:** Nikon FE2, FE, FM and FM2 cameras have screw-on-type connection via tripod socket
- Framing Speed:** Up to approx. 3.2 frames-per-second (fps) with FE2 at a shutter speed of 1/125 sec. or faster, progressively slower rates at lower shutter speeds, automatically
- Usable Shutter Speeds:** 8 to 1/4000 sec. plus M250 in both automatic and manual modes
- Power Source:** 8 AA-type 1.5V penlight batteries housed in integral battery chamber; set of alkaline batteries will last for approx. 100 36-exposure rolls of film
- Pilot Lamp:** Built-in LED-type; switches on during operation and when the film supply is exhausted
- Remote Control Operation:** Terminal provided for optional accessories
- Dimensions (W x D x H):** 5.7 x 2.7 x 4.3 in.  
(144 x 68.5 x 109.5mm)
- Weight:** 14.5 oz. (410g)—without batteries
- Product Number: 102**

## Technical Specifications: Nikon MF-16 Data Back

- Usable Camera:** Nikon FE2 or FM2
- Usable Film-Speed Setting:** ASA/ISO 25—400 for color films, ASA/ISO 100—400 for B&W films
- Adjustment:** By 3-position switch:  
1) Color 25-64, B&W 100-400  
2) Color 80-160  
3) Color 200-400
- Data Imprint Type:** By 7-segment, 6-digit red LEDs
- Imprint Data:** Date (Year/Month/Day) up to 2100 A.D., Time (Day/Hour/Minute) or frame-counter number up to 2000; time mode is underlined for identification from date mode
- Imprint Area:** Red numerals at lower right-hand corner of picture frame; can be switched off
- Audible Alarm:** 20-sec. alarm at the time set
- Imprint Signal:** Via direct contacts in camera body
- Data Display:** By liquid crystal display (LCD)
- Display Indications:** "AL": lit when alarm mode is on; "PRINT": blinks when imprint ON/OFF switch is on; "NO": lit when film counter on; "L," "M" or "H": film-speed indicator
- Operational Buttons:** "P" Key: select imprint or not; "MODE" key: select imprint mode; "ASA/ISO" key: change film speed; "CR" key: adjust or not, and select which digit to change; two keys for single or fast forwarding of numbers
- Power Source:** Two 1.55V silver-oxide batteries; LCD blinks to indicate battery drain
- Dimensions (W x H x D):** 5.6 x 2.1 x 1 in.  
(142.5 x 53 x 26.5mm)
- Weight:** 3.2 oz. (90g)
- Product Number: 4526**

Specifications subject to change without notice.

# Nikon FM



- **Compact, Lightweight Convenience**
- **Gallium Photo Diode Meter with LED Readout**
- **Full Motor Drive Capability**

The Nikon FM is a camera of exceptional capabilities, crafted in the uncompromising tradition of Nikon excellence. Although significantly smaller and lighter than the conventional slr, its full-size controls are designed for the fast, comfortable handling intrinsic to the Nikon system of photography. Equipped with the optional compact Nikon Motor Drive MD-12, it provides the advantages of automatic firepower in single-frame or sequence operation at rates up to 3.5 frames per second. And, it accepts all reflex-viewing F-mount slr Nikkor lenses from 6mm to 2000mm (except 6mm f5.6 and 10mm f5.6 OP Fisheye lenses) for unrestricted optical versatility.

## Gallium Photo Diode Metering with LED Readout

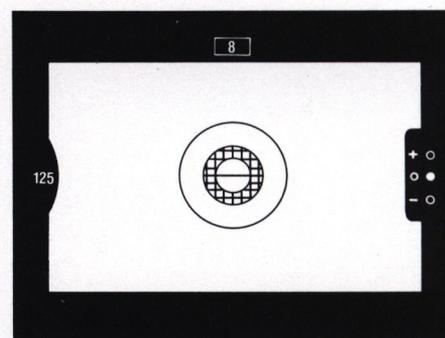
GPD system responds to light changes with incredible speed especially at low light levels. Also, its sensitivity range is so great that it can provide accurate readings anywhere from conditions requiring an exposure of 1 second at f1.4 to scenes demanding 1/1000th second at f16 (EV 1 to 18 with ASA 100 film and f1.4 lens).

The always-bright LED viewfinder readout responds to adjustments of either aperture or shutter speed. A total of 5 readout indications assure exposure accuracy within  $\pm 0.2$  EV (1/5 f-stop). Metering is speeded and simplified by automatic maximum aperture indexing with Nikon-AI lenses and on/off switching by film transport lever. Solid-state meter circuit is highly shock-resistant for lasting reliability.

+ ○ -	●	Overexposure by more than 1 f-stop
+ ○ -	●	Overexposure by 1/5 to 1 f-stop
+ ○ -	●	Correct Exposure
+ ○ -	●	Underexposure by 1/5 to 1 f-stop
+ ○ -	●	Underexposure by more than 1 f-stop

## Center-Weighted Through-The-Lens Meter

The Nikon FM meter observes the entire image area but concentrates more than half its sensitivity in the central 12mm area, shown by a circle in the viewfinder. This proven, center-weighted method assures consistently excellent exposures with a single reading, under the broadest variety of lighting conditions and is equally accurate with the camera held in vertical or horizontal position. Metering is done at full aperture with all Nikon-AI lenses, with stop-down metering of equal accuracy when using non Nikon-AI lenses or accessories.



## Full-Information Viewfinder

Shows precise lens aperture in use with all Nikon-AI lenses via exclusive Nikon Aperture Direct Reading (ADR) method; also shows selected shutter speed, correct exposure, and under/over-exposure signals. The extremely bright pentaprism finder contains the famed Nikon "K" screen, providing split-image rangefinder, microprism circle, and full-area groundglass for unparalleled focusing accuracy.

# Nikon FM

## Unique Metal Shutter with High-Speed X-Synch

Vertical-travel shutter, specially designed for FM, travels up instead of down, minimizing noise and vibration and increasing durability. Top-mounted dial controls 12 speeds, 1 second to 1/1000th, plus "B", with electronic flash synch to 1/125th second and bulb synch to 1/30th. Built-in hot shoe accepts standard Nikon and other cordless flash units; shoe is switched on only when unit is in place, preventing annoying shock. Additional PC terminal, for cord-type units and for off-camera flash, is threaded for slip-proof Nikon screw-on cords, accepts all PC cords.

## Convenient Multiple Exposure Control

Simply push button on camera top towards viewfinder while operating transport lever to re-cock shutter without advancing film. Registration accuracy is highly precise.

## Other Features

Nikon FM offers a 'cancellable' self timer, film-memo holder, and depth-of-field preview control. Its oversize pressure plate plus extra-long film rails, cassette stabilizer, anti-bellying roller and emulsion-side-out winding on takeup spool assure superior film flatness for optimum edge-to-edge sharpness.

Nikon FM is available in either satin chrome (Product No. 1682) or in professional black finish (Product No. 1686).

## Nikon Motor Drive MD-12

This compact motor drive permits single-shot or sequence operation at firing rates up to 3.5 frames per second, according to shutter speed in use, as well as multiple exposures. The motor provides a convenient anatomical grip with built-in shutter release button. Using 8 penlite AA alkaline batteries, it delivers power for approximately 100 36-exposure film loads. Automatic meter shut-off after 50 seconds conserves battery power. Built-in external LED signal indicates correct functioning. MD-12 also permits remote operation via Nikon Modulite, Wireless Remote Control, and Intervalometers. All-metal MD-12 motor screws directly onto FM camera via a convenient knurled screw. Measures 5.7" x 2.7" x 4.3" (144mm x 68.5mm x 109.5mm) and weighs 14.5 oz. (410g), less batteries. Nikon MD-12 unit, Product No. 102.

## Technical Specifications

**Camera Type:** Compact 35mm SLR with through-the-lens Gallium Photo Diode metering, interchangeable lenses, and accessory Motor Drive.

**Lens Mount:** Stainless steel Nikon bayonet accepts all reflex-viewing Nikon lenses 6mm-2000mm and all Nikon-mount accessories. Flange/film distance 46.5mm. Automatic diaphragm coupling.

**Exposure Control:** Through-the-lens, LED readout with aperture or shutter priority.

**Meter System:** Dual Gallium Photo Diode cells concentrate more than half of their sensitivity on central 12mm area shown by circle in finder; operates at full aperture with all Nikon-AI lenses; stop-down measurement with non-AI lenses, attachments, or instruments. Automatic maximum-aperture indexing with all Nikon-AI lenses.

**Meter Ranges:** ASA 12-3200; EV 1 to 18 (with ASA 100 film and f1.4 lens). Full-aperture coupling range: f1.2-f32.

**Shutter:** All-metal vertical-travel focal plane; speeds "B", 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500, and 1/1000th second.

**Flash Synchronization:** "X" synch at "B" to -1/125th second, "M" synch at "B", 1-1/30th second.

**Flash Contacts:** Built-in hot shoe with automatic safety switch; single PC outlet accepts Nikon screw-on or conventional PC cords.

**Viewfinder:** Built-in pentaprism finder with -1.0 diopter correction; information display includes 5-stage LED readout, under/over-exposure indicators, shutter speed in use, and selected lens aperture with all Nikon-AI lenses through Nikon Aperture Direct Reading (ADR) system.

**Focusing Screen:** Fixed Nikon Type K screen with 3mm-diameter split-image rangefinder, 1mm microprism circle plus overall matte Fresnel area; large circle shows center-weighted measurement area.

**Reflex Mirror:** Oversize instant-return type with special damping mechanism.

**Film Loading:** Multi-slotted takeup spool, hinged back and additive automatic-reset exposure counter for fast loading.

**Film Transport:** Single-stroke lever advances film, winds shutter, switches meter on, and counts exposures in 135° action, may be left at "ready" position 30° from camera body, to activate meter; when folded flush, lever turns meter off.

**Film Rewind:** Rewind-release button on camera baseplate; fold-out rewind crank pulls up to open camera back, after safety catch is released.

**Multiple Exposure Control:** By pressing control button on camera top while operating film transport lever; also operates with Nikon Motor Drive attached.

**Battery Type:** Two 1.5v silver oxide batteries (Eveready S76 or equivalent) power meter.

**Other Features:** Depth-of-field preview; stainless-steel reinforced neckstrap eyelets; built-in self-timer with variable delay to approximately 10 seconds, timer cycle may be 'cancelled' before exposure; memo holder on camera back stores film carton tab or other data.

**Dimensions:** Camera body, 5.6" x 2.4" x 3.5" (142mm x 60.5mm x 89.5mm).

**Weight:** 20.8 oz. (590g).



Nikonos IV-A System  
Nikonos Speedlight SB-101  
Nikonos/Nikkor Lenses  
Nikonos Accessories



## Nikon's automatic all-weather camera.

- Completely waterproof to depths of 160 feet (26.7 fathoms)
- All-weather construction for safe use in rain, snow, sleet, hail, dust, sand...
- Automatic aperture-priority exposure control
- Accepts four interchangeable Nikonos/Nikkor lenses
- Incorporates dedicated, automatic electronic flash system
- Complete system of accessories for close-up photography

No other camera in the world can come close to matching the specifications of the Nikonos IV-A. It's a watertight, automatic exposure 35mm camera that offers a system of lenses and accessories plus dedicated flash operation. Capable of going down to depths of 160 feet without a special underwater housing, the self-contained Nikonos IV-A remains totally waterproof. In fact, its extraordinarily rugged construction makes a

Nikonos the ideal camera to use in situations where you wouldn't risk a regular camera, from boating to mountain climbing or exploring caves.

The Nikonos IV-A is very easy to use, because exposures are automatic. Pressing the shutter release button halfway activates the camera's built-in exposure control system. A highly-visible LED at the bottom of the bright albedo viewfinder glows continuously if the exposure is within the camera's shutter speed range—1/30 - 1/1000 sec. If the exposure is beyond this range, the LED blinks as a warning to readjust the aperture or use flash. Shutter speeds are stepless and electronically timed for precise exposures above or below the surface. The Nikonos IV-A may also be used at the mechanical "M" setting (1/90 sec.) or "B" for time exposures.

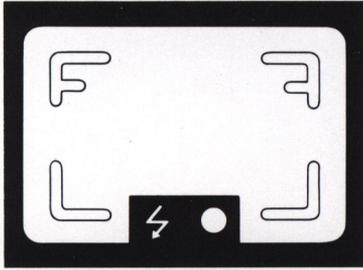
Since illumination fades fast as you dive, a flash unit becomes an indispensable accessory. And with the Nikonos IV-A/Speedlight SB-101

combination, flash photography is as easy and mistake-proof as taking an available-light picture. When connected to the camera and activated, the SB-101 automatically programs the Nikonos' shutter to the correct X-sync speed (1/90 sec.) and activates a viewfinder flash ready-light. The SB-101 provides automatic flash exposure as well as manual with a power ratio control to facilitate close-up and synchro-sunlight photography.

Oversized controls, from the shutter release to the focus and aperture controls on the lens, make it very easy to use the Nikonos IV-A, even when wearing gloves. And, the Nikonos system further extends the camera's capabilities. In addition to the SB-101 flash, four interchangeable Nikonos/Nikkor lenses are available as well as a special kit for close-up photography.

See page 4 for complete product specifications.

# Nikonos IV-A



## High-Eyepoint Viewfinder

High-eyepoint optical design permits full field visibility at up to 1.6 in. from eyepiece, as when wearing diving goggles. Albada finder has luminous framelines with parallax correction marks which correlate use with the 35mm lens in or out of water. LED at bottom of finder lights to indicate proper exposure; blinks if exposure is out of camera's range. Flash ready lightning bolt symbol is activated by dedicated Nikonos SB-101 flash.



## Heavy Duty Metal Shutter

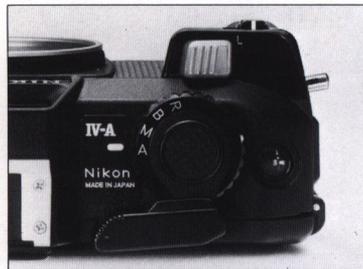
Provides stepless, electronically-timed shutter speeds from 1/30-1/1000 sec. plus mechanical "M" (1/90 sec.) and "B" settings for manual control or flash photography, independent of camera batteries—a vital fail-safe feature found on all Nikon cameras. All-metal construction is impervious to rot, mildew, fungus or pinholes for long-lasting trouble-free operation. Special meter reflector on front of shutter blades directs light up to SPD metering cell for TTL exposures.



## O-Ring Seals

Nikonos IV-A's die-cast metal chassis is sealed against moisture and particulate infiltration with a corrosion resistant coating and 13 special O-ring seals. Used at every joint where water may get into the camera, these special gaskets tighten the seal as water pressure increases. This unique construction makes it impervious to natural elements and completely waterproof down to 160 ft. underwater.\*

\*Nikonos cameras have been successfully used in corrosive tear gas and some chemical applications. While cameras have been successfully employed, they are not guaranteed to perform under or survive such conditions. Individuals should perform appropriate tests to determine effect prior to exposing their Nikonos cameras to such an atmosphere.



## Control Dial/Film Advance Lever

Four-position control dial can be set at "A" for aperture-priority automatic, "M" for mechanical 1/90 sec., "B" for time exposures or "R" for rewinding film. Positive click-stop detents prevent accidental movement. Ratcheted film advance lever winds film in single or multiple strokes. Its special design allows easy operation even when wearing gloves.



## Meter Switch/Shutter Release

Conveniently located at the top of the IV-A's action grip is the bright orange oversized shutter release button. It's ribbed for non-slip operation. The release doubles as the meter switch. Pushing it halfway down turns on the meter; depressing fully fires the shutter. To save energy, the meter shuts off automatically 20 sec. after the button is released. Switch on the front of the grip locks shutter release to prevent accidental exposures.



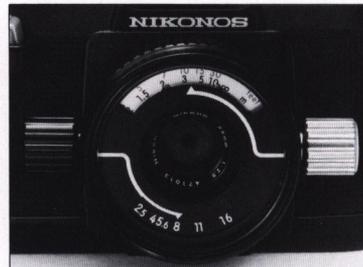
## Fast, Convenient Film Loading

Hinged camera back (with special safety lock) and multi-slotted take-up spool expedite film loading and changing. On AUTO, camera automatically fires at fastest speed until film is advanced to frame #1. This prevents annoying delays otherwise possible in dim light or with the lens cap on.



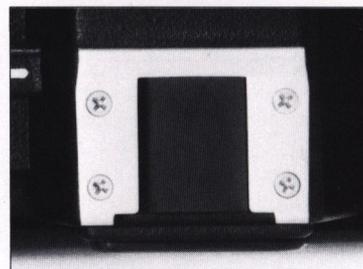
## Dedicated Flash Socket

Sealed, water-tight attachment socket accepts connecting cord for Nikonos SB-101 flash. When activated, the SB-101 automatically programs the Nikonos IV-A's shutter to the correct X-sync speed (1/90 sec.) and activates the viewfinder ready-light symbol. Out of water, special Nikon adapters permit the use of standard Nikon PC-cord and ISO-type hot shoe electronic flash units at the camera's M90 setting.



## Focus/Aperture Controls

Interchangeable lenses for Nikonos IV-A incorporate extra-large, heavy-duty controls for focus and aperture setting. Red depth-of-field pointers on focusing distance scale vary with lens aperture set for easy judgment of overall range of sharp focus.



## Accessory Shoe

Sturdy accessory shoe accepts accessory optical viewfinders, action frame finders, flash unit adapter or remote sensor for the Nikonos Speedlight SB-101 flash unit.

## Dedicated electronic flash for underwater or all-weather photography.

The Nikonos Speedlight SB-101 was designed exclusively for use with the Nikonos IV-A camera, providing dedicated and automatic operation. Like the Nikonos IV-A, the SB-101 can be used underwater to depths of 160 ft. and in virtually any other environment, with assured success.

When attached to the IV-A's special waterproof sync terminal and turned on, the SB-101 programs the camera's shutter to the correct X-sync speed (1/90 sec.) from the AUTO exposure mode. At full charge, a viewfinder flash ready-light signals the user that both camera and flash are ready to fire. Exposures are automatic at either of two shooting aper-

tures (f4 or f8 at ASA/ISO 100). Its powerful light output enables auto-flash pictures at up to 26 feet on land or about 13 feet underwater, depending on depth and clarity. On manual, the SB-101's maximum shooting distance is extended to about 42 ft. on land and about half that distance in water. Its variable power control permits reduced light output for close-up applications.

The Speedlight SB-101 attaches to the Nikonos IV-A by means of a quick release bracket and incorporates a heavy duty swiveling ball head that can rotate up to 180°. The remote sensor attaches to the camera's accessory shoe so automatic flash exposures

are always based on the subject, regardless of the direction the flash is pointed. When accessory finders are used on the Nikonos IV-A, the SB-101's remote sensor may be attached to the camera mounting bracket with no loss of automatic function. Energy-saving thyristor circuitry can deliver more than 150 flashes per set of eight AA alkaline batteries with recycling times as quick as one second.

The SB-101 also provides auto flash photography to Nikonos III owners, but without dedicated camera functions.

See page 4 for complete product specifications.



# Nikonos IV-A

## Technical Specifications: Nikonos IV-A

**Type of Camera:** 35mm amphibious camera with auto exposure control

**Picture Format:** Standard 35mm film format (24mm x 36mm frame size)

**Lens Mount:** Nikonos bayonet type

**Lenses:** W-Nikkor 35mm as standard; three other interchangeable lenses available

**Auto Exposure Control:** Aperture-priority automatic via TTL center-weighted metering at stopped down aperture; meter incorporates one SPD (silicon photo diode)

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

**Shutter Speed:** Stepless speeds from 1/30 to 1/1000 sec. at "A" setting on shooting mode selector; mechanically controlled speed of 1/90 sec. at "M" setting; long exposures at "B" setting

**Shutter Release Button:** Switches meter on when depressed halfway; meter stays on for approx. 20 sec. after finger is lifted off button

**Film Speed Range:** ASA/ISO 25-1600

**Auto Exposure Range:** EV 8-19 at ASA/ISO 100 with f/2.8 lens

**Viewfinder:** Bright frame finder for use with 35mm lens; high-eyepoint construction allows viewing entire field with eye up to 40mm away from finder; frame coverage of approx. 85%; 0.55X magnification; diopter 0.9; parallax correction marks provided

**Viewfinder Display:** Red LED lights up when shutter speed is between 1/30 sec. and 1/1000 sec. at "A" setting; blinks if shutter speed is out of this range; flash ready-light provided for use with SB-101 Speedlight

**Flash Synchronization:** Via flash socket; automatic flash sync at 1/90 sec. with SB-101 Speedlight when shooting mode selector is set to "A"; "M" setting for other speedlights; bulb-type flash not usable

**Film Advance Lever:** Wound in single stroke or series of strokes; 144° winding angle; hinged for compact storage

**Frame Counter:** Additive type; auto exposure operation starts from frame 1

**Film Rewind:** By film rewind crank after shooting mode selector is set to "R"

**Camera Back:** Hinged type; camera back latch and safety lock provided

**Pressure Plate:** Hinged type with locking catch

**Batteries:** Two 1.5V silver-oxide batteries; battery check by viewfinder LED

**Dimensions (W x H x D):** 5.9" x 3.9" x 2.3" (149 x 99 x 58mm), body only

**Weight:** 26.1 oz. (740g), body only

**Product Number:** 10060 (body only)/10061 (with 35mm f2.5 standard lens)

## Technical Specifications: Nikonos Speedlight SB-101

**Light Output Control:** Automatic: Silicon-controlled rectifier (thyristor) and series circuitry using Sensor Unit SU-101; choice of two f/stops; Manual: Full power, 1/4 power

**Guide Number (ASA/ISO 100, ft.):** On land: 105 (full output), 52 (1/4 output); Underwater: 52 (full output), 26 (1/4 output)\*

**Automatic Shooting Range (ASA/ISO 100):** On land: 2-26 ft. (0.6-8m)\*; Underwater: 2-13 ft. (0.6-4m)\*

**Angle of Coverage:** On land: 66°; Underwater: Approx. 50° (Both cover 35mm lens angle)

**Film Speed Range:** ASA/ISO 25-800

**Recycling Time:** Automatic: Variable depending on shooting distance; Manual: Approx. 8 sec. with fresh batteries

**Number of Flashes:** Automatic: Depends on shooting distance; Manual: Approx. 150 at full power with fresh set of alkaline-manganese batteries

**Power Source:** Eight 1.5V AA-type penlight batteries

**Ready-Light:** Provided

**Mounting:** Bracket-type

**Dimensions (W x H x D):** 3.7" x 15.9" x 6.2" (94 x 403 x 157mm), excluding bracket

**Weight:** 4 lb. 3 oz. (1.9kg), body only

**Product Number:** 10740

\*The numbers and ranges specified are applicable only in clear water and will vary depending on water conditions. Supplied with Sensor Unit SU-101, mounting bracket, sensor holder, battery clip, and O-ring set in Carrying Case SS-101.

## Technical Specifications: Nikonos/Nikkor Lenses

Specifications	15mm f2.8 UW-Nikkor	28mm f3.5 UW-Nikkor	35mm f2.5 W-Nikkor	80mm f4 Nikkor
<b>Lens Construction:</b>	9 elements in 5 groups*	6 elements in 5 groups*	7 elements in 5 groups	4 elements in 4 groups
<b>Picture Angle:</b>	94° underwater	59° underwater	62° on land; 46°30' underwater	30°20' on land; 22°45' underwater
<b>Aperture Scale:</b>	f2.8—f22	f3.5—f22	f2.5—f22	f4—f22
<b>Distance Scale:</b>	∞—1 ft. (0.3m)	∞—2 ft. (0.6m)	∞—2.75 ft. (0.8m)	∞—3.5 ft. (1m)
<b>Attachment Size:</b>	84mm (P = 0.75)	58mm (P = 0.75)	58mm (P = 0.75)	58mm (P = 0.75)
<b>Dimensions: (dia. x length)</b>	3.5 x 3.1 in. (90 x 79.5mm)	2.4 x 1.7 in. (62 x 43.8mm)	2.4 x 1.5 in. (62 x 39.5mm)	2.4 x 2.6 in. (62 x 66mm)
<b>Weight:</b>	11.3 oz. (320g)	6.2 oz. (175g)	5.6 oz. (160g)	97 oz. (275g)
<b>Optional Finders:</b>	Optical	Optical; frame	Frame	Optical; frame
<b>Product Number:</b>	10309	10310	10311	10312

\*Including water-shielding flat glass

Specifications subject to change without notice.



## Waterproof, interchangeable lenses for all-weather Nikonos photography.

### **15mm f2.8 UW-Nikkor**

Designed exclusively for underwater use, the 15mm f2.8 UW-Nikkor provides the same coverage as a 20mm lens on land. Its rectilinear (non-distorting) ultra-wide angle optical formula provides tremendous depth of field and almost eliminates the need for focusing. The 15mm takes in more than four times the area compared to the normal 35mm lens, making it ideal for photographing in confined spaces or for taking in expansive views in clear water. An optical finder showing the area of coverage is available as an accessory (see page 6).

### **28mm f3.5 UW-Nikkor**

The 28mm f3.5 UW-Nikkor is also

for underwater use only. Due to water's magnifying effect, its field of view corresponds to that of a 35mm lens on land. The 28mm can be used as an all-around wide angle lens and also provides stunning close-ups when used with the Nikonos Close-Up Outfit. Special optical and plastic frame finders are available (see page 6).

### **35mm f2.5 W-Nikkor**

Considered the standard lens for the Nikonos IV-A, the 35mm f2.5 W-Nikkor can be used on land and underwater without any modifications. Underwater, it's virtually the same as using a 50mm normal lens on land. Out of water, the 35mm Nikonos lens is a good choice for

scenics and general photography. The 35mm can also be used with the Nikonos Close-Up Outfit.

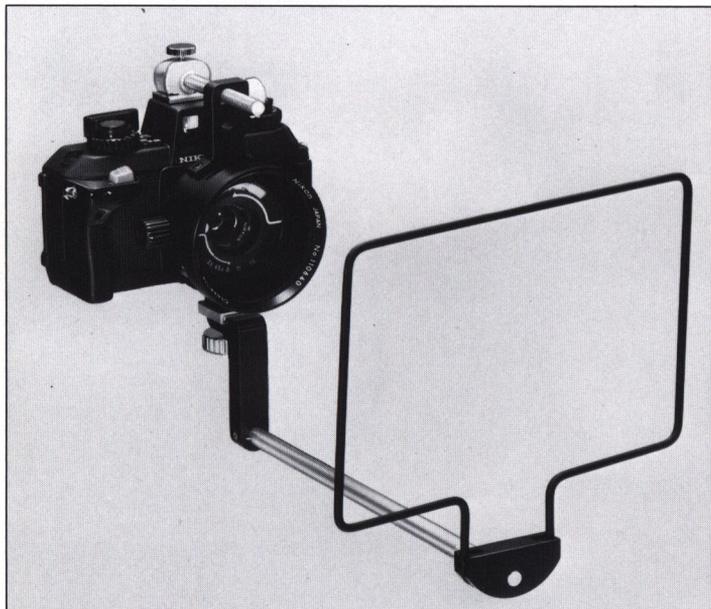
### **80mm f4 Nikkor**

This telephoto lens for Nikonos cameras is for use above or below the water. Underwater, it approximates a 105mm lens. The 80mm can also be used with the Nikonos Close-Up Outfit. A plastic frame finder is available for use underwater, while an optical viewfinder can be mounted on the camera's accessory shoe for on-land usage (see page 6).

---

See page 4 for complete product specifications.

## Nikonos Accessories



### Nikonos Close-Up Outfit

For close-up photography in or out of water with the Nikonos camera. Outfit consists of universal close-up lens which mounts in front of the 28mm, 35mm or 80mm lens, three wire framing fields matching the area of coverage of these three lenses, plus a frame support bracket mounted on the camera which is used to determine the exact camera-to-subject distance. Photographers simply place the subject being photographed within the frame to take a critically sharp close-up photograph. Supplied with compartment case.

**Product Number 10705**

#### Technical Data

Nikonos/Nikkor		Underwater	Out-of-Water
28mm f3.5	Field Size Mag. Ratio	5.7 x 8.5" 1:6	unusable unusable
35mm f2.5	Field Size Mag. Ratio	4.3 x 6.4" 1:4.5	6.1 x 9.1" 1:6.5
80mm f4	Field Size Mag. Ratio	2.1 x 3.1" 1:2.2	2.8 x 4.2" 1:3

Specifications subject to change without notice.



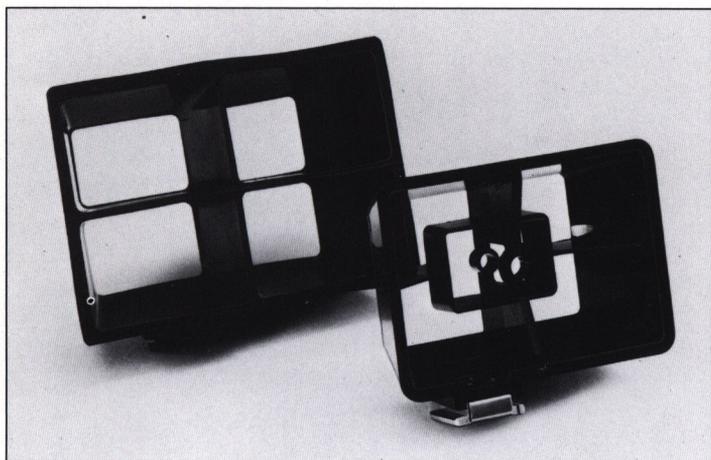
### Nikonos Optical Viewfinders

The Nikonos IV-A is a non-SLR camera and therefore requires accessory viewfinder attachments to accurately gauge the coverage of its interchangeable lenses, other than the 35mm.

**For 15mm f2.8: Product Number 10754**

**For 28mm and 35mm: Product Number 10755**

**For 80mm f4: Product Number 10756**



### Nikonos Open-Frame Finders

For underwater use, open-frame finders permit accurate composition with the photographer's eye away from the eyepiece, as when wearing a diving mask.

**For 28mm f3.5: Product Number 10751**

**For 35mm f2.5 and 80mm f4: Product Number 10753**

## Nikonos Lens Protector and Lens Hood/ Filter Holder

The Nikonos plastic lens protector threads into the Nikonos/Nikkor 28mm f3.5, 35mm f2.5 or 80mm f4 lens for added safety against damaging their water-shielding cover glass. The lens hood/filter holder, for the 35mm and 80mm lenses, shields against extraneous light and permits attaching Nikon 52mm filters to these lenses.

**Lens Protector: Product Number 10620**

**Lens Hood/Filter Holder: Product Number 10625**



## Nikonos Rubber Lens Hood

For the ultimate in protection when using the standard 35mm lens, the Rubber Lens Hood slips over the entire lens to prevent scratches and block out stray light.

**Product Number 10626**



## Nikonos Lens Cases

To take along accessory Nikonos/Nikkor lenses, attractive, hard leatherette cases with soft lining are available. Complete with carrying strap. Model CL-50 accommodates the 28mm or 35mm lens; Model CL-51 accepts the 80mm lens.

**CL-50: Product Number 10418**

**CL-51: Product Number 10419**



## Nikonos Accessories



### **Nikonos Pouch Case**

Smartly styled compartment case holds Nikonos IV-A camera with 28mm or 35mm lens mounted. Front storage pocket can be used for extra film, filters, etc.

**Product Number 10420**



### **Nikon PC Flash Unit Adapter**

Permits use of standard Nikon Speedlight flash units with PC connection cords out of the water. Does not activate dedicated Nikonos IV-A functions.

**Product Number 10729**

### **Not illustrated:**

### **Nikonos Hot Shoe Adapter SC-10**

Permits use of standard, hot shoe mount Nikon Speedlight flash units with the Nikonos IV-A for out of water usage. Does not activate dedicated camera functions.

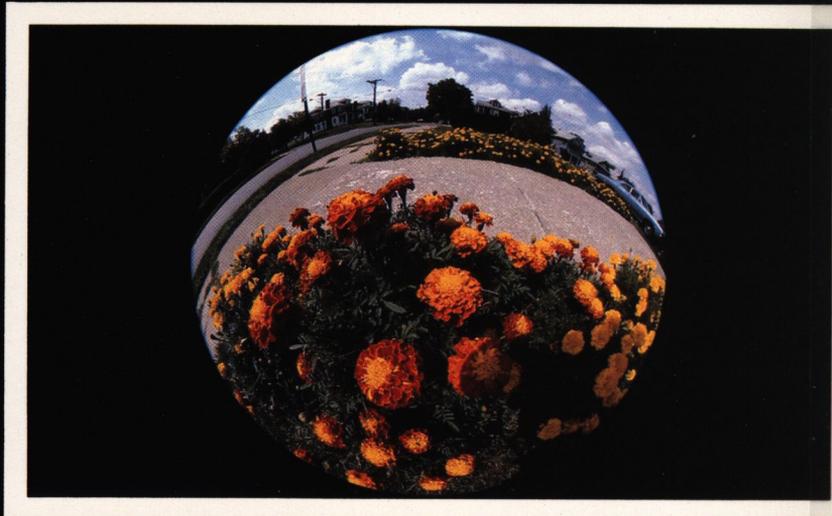
**Product Number 366**

Requires Flash Unit Adapter, **Product Number 10729.**

### **Nikon Optical Glass Filters**

More than 20 available with 52mm thread size including a CC30R which is especially favored for underwater photography when using daylight-balanced color films. See Lens Section, page 20, for complete information on all Nikon filters.

Nikon SLR Lenses  
Nikkor Lenses  
Series E Lenses  
Nikon Filters  
Nikon Lens Accessories  
AI Modification Service  
EL-Nikkor Enlarging Lenses  
Nikkor Large Format Lenses



Well before Nikon ever assembled its first camera, the company manufactured high-quality optics. In fact, the success of Nikon cameras as professional tools comes from their extensive range and unrivaled variety of lenses. They range from 6mm fisheye, a lens that actually "sees" behind itself, to a 2000mm super telephoto with 40 times the reach of a normal, 50mm lens. And in between are an amazing selection of zooms, special purpose and micro lenses.

It should come as no surprise that Nikon lenses, including the superior Nikkor optics and the economical, high-quality Series E lenses, are the best you can mount on a Nikon camera. Their optical and mechanical design perfectly matches the tolerances for mating them to a Nikon 35mm SLR camera. But most important, Nikon controls every aspect of lens manufacturing, from producing the raw optical glass to polishing the lens elements, including precision assembly with rigid quality control and inspection at every step. It's a painstaking process that takes months to complete.

## **Nikon Optical Glass: The Heart of Every Nikon Lens**

Unlike many camera and/or lens manufacturers, Nikon produces their own optical glass from the raw materials. The advantages are two-fold. Research and development allows Nikon to design new and different types of glasses to meet the requirements of a lens' design so there's no need to compromise the optical engineer's specifications. Secondly, each batch is carefully checked to see that its optical properties are up to par. And the examinations continue at every step as the raw glass is processed into an optical element and finally a finished Nikon lens.

## **Mechanical Design: Precision Inside and Out**

Still, there's more to a lens than the glass. A precision assembly must hold the elements, move them back and forth to focus and seat them properly to the camera. Also, it must couple properly to the camera's light meter. A lens' aperture blades must open

and close smoothly and be able to withstand the rigors of a motor drive at six frames-per-second. The best grades of materials and the strongest alloys are used in Nikon lenses. In the lens mount, for example, chromium-plated brass is used against the stainless steel camera flange so there's no wear, even after thousands of lens changes. And, the same Nikon F bayonet mount is used today as in 1959. When a Nikon lens is attached to a Nikon camera, it is perfectly aligned with the film plane and the Automatic Maximum Aperture Indexing (AI) feature couples correctly for accurate metering as well as full camera functions. And only a Nikon lens is made specifically for a Nikon camera. While other brands may appear to fit, they can never take the place of a Nikon lens. For example, a simple feature such as the LED flash ready-light/warning signal in the EM's viewfinder may not function properly. Or, the lens' aperture blades may not open and close fast enough to maintain consistent exposures at the rapid rate of six frames-per-second.



# Nikon Lenses

## **Nikon Integrated Coating: For Premium Optical Performance**

The glass in lenses not only transmits light, it reflects part of it also. This can be a major problem in the development of sophisticated new optical systems such as high-ratio zooms. It also tends to lower the contrast and introduce flare in more common place fixed focal length lenses. The solution is to coat the lens elements with anti-reflective material. Nikon's coating is integrated into the design of a lens for exceptionally faithful color reproduction lens to lens. Multiple layers of coatings, matched to the lens type and glass, are applied to lens elements in a vacuum chamber. Nikon Integrated Coating produces a dramatic increase in image contrast and virtually eliminates flare caused by internal reflections. Most important, color balance is uniform throughout the lens system.

## **Nikon Extra-Low Dispersion (ED) Glass: Revolutionary Glass for Extraordinary Lenses**

Nikon Extra-Low Dispersion glass solves the problems of the conflicting demand for both large apertures and high picture quality in long telephoto lenses. Images from non-ED telephoto lenses tend to exhibit chromatic aberration because all wavelengths of light are not brought back to a common focus point at the film plane. When you visually compare pictures taken with ED and non-ED lenses, you can see a fringe of color that's really not in the picture. For very critical assignments where there can be no compromise in color rendition or image crispness, Nikon ED lenses are the only way to shoot. They are expensive, compared to non-ED lenses, but nothing is too high for perfection. Without Extra-Low Dispersion glass, there would be no lenses such as the 300mm f2.8 or 200mm f2 telephoto.

## **Nikon Internal Focusing: For More Compact, Lightweight Optics**

Conventional telephoto lenses tend to be large and difficult to handle because they require a heavy and bulky focusing mechanism. To remedy this problem, Nikon designers developed the Internal Focusing (IF) system. Besides a drastic reduction in the size and weight of the lens, performance was greatly improved. The internal focusing design keeps the barrel length of a lens constant throughout its focusing range for easier, better-balanced handling. Plus, it permits lenses of this type to focus closer than comparable lenses without internal focusing.

## **Nikon Close Range Correction: A System for Superior Resolution**

Due to the physics of optical elements, there can be a marked falloff of the image quality as the lens is focused closer than its design has been optimized for. To compensate for this inherent problem, Nikon introduced the Close-Range Correction (CRC) system, sometimes referred to as a Floating Element design. When a Nikon lens which incorporates CRC is focused at close distances, the rear elements shift to maintain high resolution and image quality. Most Nikon wide angle lenses have CRC, as well as the fast, 85mm f1.4 Nikkor telephoto.

It's innovative ideas such as these found in interchangeable 35mm SLR camera lenses, Nikon enlarging lenses and large format optics that make them unsurpassed in terms of physical and optical properties. Still, as good as Nikon lenses are, they are constantly being improved and refined. And, as the research continues, even more exciting and innovative lens designs will be developed.



Initially developed for scientific research, Nikon fisheye lenses have now crossed into commercial applications because of the spectacular pictorial effects they produce. The optical physics inherent in their design creates a fisheye lens' most famous characteristic—extreme barrel distortion which causes straight lines on the periphery of a picture to be bowed in. Nikon fisheye lenses are available to produce circular-format hemispheric picture coverage or full frame. All three Nikkor Fisheye lenses have fast, f2.8 maximum apertures for bright viewing, provide TTL metering and are supplied with a set of internal filters for light balancing or creative effects. These lenses are ideal for shooting in cramped quarters such as an airplane cockpit, taking in the entire scene even at close shooting distances.

## **Nikon 6mm Lens**

### **6mm f2.8 Fisheye-Nikkor**

With an astounding 220° circular coverage, the 6mm f2.8 Fisheye-Nikkor can actually “see” behind itself. The lens focuses as close as 9.8 in., but thanks to its extreme depth-of-field, even nearer subjects will be rendered sharp when the lens is stopped down. A lens stand/tripod mounting socket is built-in, as is a 5-filter turret with skylight, two yellow, orange and red filters. This lens is available by special order.

## **Nikon 8mm Lens**

### **8mm f2.8 Fisheye-Nikkor**

The 8mm f2.8 Fisheye-Nikkor produces a circular image on film with 180° field of view. It incorporates a set of five filters (skylight, two yellow, orange and red) built into a revolving turret, and may be focused down to one foot. Supplied with CL-11 lens case.

## **Nikon 16mm Lens**

### **16mm f2.8 Fisheye-Nikkor**

The 16mm f2.8 Fisheye-Nikkor is extremely compact and lightweight and provides 180° picture coverage on a full frame negative. In addition to the application of Nikon's Integrated Coating on each lens surface, the 16mm has a built-in, scalloped lens hood for better flare control and improved image contrast. This lens is supplied with a set of four rear-mount bayonet filters: red, yellow, orange and skylight.

See page 17 for complete product specifications.

# Nikon Ultra-Wide Angle Lenses



Nikon ultra-wide angle lenses range from a 13mm, the widest available for 35mm photography, to one of the most compact 20mm's available. Unlike fisheye lenses, Nikon ultra-wide angles are rectilinear—straight lines are rendered straight. Ultra-wide angle lenses also exhibit immense depth-of-field at virtually all apertures. So prefocusing to “shoot from the hip” leaves little worry of an out-of-focus picture. The most exciting feature of this type of lens is its tendency to exaggerate the size of objects closest to the lens. By stretching out the apparent distance between foreground and background, an ultra-wide angle Nikkor can create the impression of three-dimensionality. Photographic applications are limitless in the areas of fashion, product and travel photography as well as photojournalism.

See page 17 for complete product specifications.

## Nikon 13mm Lens

### 13mm f5.6 Nikkor

The 13mm f5.6 Nikkor ultra-wide angle lens provides a sweeping 118° picture coverage—wider than any rectilinear lens available. In addition to its inherently wide depth-of-field, the lens employs the CRC floating element system for superior edge-to-edge sharpness from infinity down to one foot. For added flare control and improved image contrast, a scalloped lens hood is built-in. The 13mm Nikkor is supplied with four rear-mount bayonet filters (skylight, yellow, orange and red) and a hard leatherette case, model CL-14.

## Nikon 15mm Lens

### 15mm f3.5 Nikkor

Nikon's 15mm f3.5 lens incorporates many of the features found on the 13mm ultra-wide angle, but with slightly narrower, 110° picture coverage. It's designed with a floating element system for better resolution when focused as close as 12 in., and has a built-in hood to reduce flare and improve image contrast for better resolution. The 15mm is supplied with four rear-mount bayonet filters (skylight, red, yellow and orange) and a CL-17 lens case.

## Nikon 18mm Lens

### 18mm f3.5 Nikkor

With 100° coverage, the 18mm f3.5 Nikkor can take in more than twice the picture area of a normal lens. For its focal length, it offers a wide maximum aperture, yet provides a standardized 72mm filter thread. This lens' improved design uses the Nikon CRC system which also permits closer focusing, to about 10 in. Supplied with HK-9 lens hood and CL-37 case.

## Nikon 20mm Lens

### 20mm f3.5 Nikkor

Weighing under nine ounces, the 20mm f3.5 Nikkor ultra-wide angle lens is one of the lightest and most compact in its class. It provides 94° angle of coverage and, when reverse-mounted on a Nikon bellows unit, offers magnifications up to 12X. The 20mm Nikkor is designed for quick operation and can be focused from infinity to 12 inches in a short one-third turn of the lens barrel. Plus, the wide depth-of-field adequately compensates for any slight focusing errors on the part of the user. Despite its ultra-wide coverage, the 20mm Nikkor accepts standard 52mm Nikon filters.

# Nikon Wide Angle Lenses



When you can't back up anymore to take in the whole scene, it's time to use a Nikon wide angle lens. Nikon excels in this category with 10 lens choices covering three popular wide angle focal lengths—24mm, 28mm and 35mm. In each focal length Nikon offers a choice between high-speed optics, recommended for work in low light, or slower, more compact lenses which are excellent for all types of general photography. For photographers who want to save money without scrimping on optical quality, Nikon has both 28mm and 35mm Series E lenses.

With Nikon wide angle lenses, the wider the angle of coverage, the greater the depth-of-field. And, the more you can exaggerate perspective or accent foreground and background relationships.

## Nikon 24mm Lenses

**24mm f2 Nikkor**  
**24mm f2.8 Nikkor**

The 24mm f2 and f2.8 Nikkor lenses provide wide, 84° picture coverage

for exaggerated perspective, but are also well suited for landscapes and general travel photography. They both feature Nikon's Close Range Correction system which ensures edge-to-edge sharpness throughout their focusing range, down to 12 in. Superior optical design combined with Nikon Integrated Coating guarantees uniform brightness across the entire frame.

## Nikon 28mm Lenses

**28mm f2 Nikkor**  
**28mm f2.8 Nikkor**  
**28mm f2.8 Series E**  
**28mm f3.5 Nikkor**

The 28mm f2 and f2.8 Nikkor lenses both incorporate Nikon's CRC system for better overall resolution at close focusing distances, down to 7.9 in. The more compact 28mm f2.8 Series E and 28mm f3.5 Nikkor focus to about one foot. All four Nikon 28mm lenses are constructed of Nikon's own

multi-coated optical glass for high contrast and optimum flare control. A good general wide angle focal length, 28mm's can also provide nearly 9X magnification when reverse-mounted on a Nikon bellows unit.

## Nikon 35mm Lenses

**35mm f1.4 Nikkor**  
**35mm f2 Nikkor**  
**35mm f2.5 Series E**  
**35mm f2.8 Nikkor**

The 35mm wide angle lens is the closest in picture coverage to a normal lens and is frequently used as an alternative by photojournalists and travel photographers. Its additional depth-of-field can make the difference needed for a successful "grab" shot and their 62° angle of view matches flash coverage. All four 35mm lenses can be focused to about one foot. Additionally, the 35mm f1.4 Nikkor provides CRC for better resolution at wider apertures, particularly when focusing close.

See page 17 for complete product specifications.

# Nikon Normal Lenses



The focal length of a normal lens provides an image that approximates the natural perspective of human vision. In the Nikon system, lenses from 50-58mm are considered normal. Few photographers truly appreciate or realize the total versatility of the most popular "first" lens purchased. They offer the widest maximum apertures for a bright, easy-to-focus viewfinder image and permit low-light shooting without flash. Normal lenses lend themselves easily to all photographic applications from landscapes to portraiture. All Nikon normal lenses exhibit spectacular image quality across the field, approaching optical perfection, while remaining unusually compact and lightweight.

See page 17 for complete product specifications.

## Nikon 50mm Lenses

- 50mm f1.2 Nikkor**
- 50mm f1.4 Nikkor**
- 50mm f1.8 Nikkor**
- 50mm f1.8 Series E**

The 50mm f1.2 is Nikon's fastest lens, ideal for low-light photography. The f1.4, one-half stop slower and more compact, also performs well in available light, allowing the use of fast shutter speeds, which help ensure a sharp picture. Both the 50mm f1.8 Series E and f1.8 Nikkor lenses offer great performance in general work at a more moderate cost. In terms of overall performance, the greatest difference among the four normal Nikon 50mm lenses lies in their close focusing capability. The f1.4 and f1.8 Nikkors focus down to about 18 in.; the 50mm f1.2 focuses to 20 in. and the Series E can be used as close as 24 in. from the subject for tight framing in portraiture.

## Nikon 58mm Lens

### 58mm f1.2 Noct-Nikkor

The 58mm f1.2 Noct-Nikkor is a special purpose normal lens that employs an aspherical (non-spherical) front element. This optical design significantly reduces the image-degrading off-axis aberrations of coma and flare. This lens is primarily intended to be used for the highest quality photography under low illumination. In pictures, points of light against a dark background remain as crisp dots, with virtually no trace of flare.

See page 19 for complete product specifications.



Nikon has 14 telephoto lenses available ranging in focal length from 85mm to 300mm. They're used by photographers to pull in distant scenes when they can't get close, filling the frame with the main subject. Telephoto lenses provide less depth-of-field than normal or wide angle lenses. This characteristic can be employed to isolate a subject using selective focus techniques. The subject remains crisp while a distracting background is blurred softly. Also, telephoto lenses tend to compress the space between elements in a picture, flattening apparent perspective. Nikon telephotos from 85mm to 135mm are ideal for portraiture and general photography while 180mm to 300mm teles provide that extra reach needed for sports or nature photography.

## **Nikon 85mm Lenses** **85mm f1.4 Nikkor** **85mm f2 Nikkor**

The 85mm f1.4 Nikkor is Nikon's fastest telephoto lens, featuring floating element construction for higher edge-to-edge definition when focusing close. It accepts Nikon's 72mm filters. The extremely compact 85mm f2 takes standard 52mm filters. Both lenses focus down to 2.8 ft. for very tight framing when shooting portraits.

## **Nikon 105mm Lenses** **105mm f1.8 Nikkor** **105mm f2.5 Nikkor**

The 105mm f1.8 Nikkor is the fastest telephoto lens available in its class, providing an exceptionally bright viewfinder image and allowing the use of higher shutter speeds. The 105mm f2.5, considered a classic by

many photographers, provides unsurpassed image quality with high resolution and contrast. Both lenses incorporate built-in lens hoods and focus to 3.3 ft.

## **Nikon 135mm Lenses** **135mm f2 Nikkor** **135mm f2.8 Nikkor** **135mm f2.8 Series E** **135mm f3.5 Nikkor**

The very popular 135mm focal length category offers four Nikon lens choices for work in low light, general photography or high quality at moderate cost. All feature built-in telescopic lens hoods. The 135mm Nikkors focus to 4.5 ft., while the Series E telephoto focuses close to five feet.

See page 18 for complete product specifications.

# Nikon Telephoto Lenses



## **Nikon 180mm Lens**

### **180mm f2.8 ED-Nikkor**

The Nikkor 180mm f2.8 ED lens features Nikon's Extra-Low Dispersion glass. The lens exhibits near apochromatic performance which results in superior correction of image-degrading chromatic aberrations, even when shooting at the maximum aperture. The 180mm Nikkor focuses to about six feet and stops down to f32 for additional depth-of-field.

## **Nikon 200mm Lenses**

### **200mm f2 ED-Nikkor IF**

The 200mm f2 Nikkor is a professionally-oriented lens that features internal focusing to reduce its mass and Extra-Low Dispersion glass for a sharper image wide open. The 200mm f4, by comparison, is very lightweight and compact, well suited for traveling and all general types of outdoor photography.

See page 18 for complete product specifications.

## **Nikon 300mm Lenses**

### **300mm f2.8 ED-Nikkor IF**

### **300mm f4.5 ED-Nikkor IF**

### **300mm f4.5 Nikkor**

For professional photographic applications, the 300mm f2.8 ED-Nikkor IF offers extremely bright focusing and fast shutter speeds in low-light shooting situations. It features internal focusing and Extra-Low Dispersion glass. The virtues of these features become readily apparent when examining the two available 300mm f4.5 lenses. Aside from the advantages of ED glass, the 300mm f4.5 ED-Nikkor IF is lighter, more compact and focuses over 3 ft. closer than the other model. The regular 300mm f4.5 Nikkor provides excellent resolution and contrast at about half the cost.

# Nikon Super-Telephoto Lenses



Nikon's all glass super-telephoto lenses, ranging in focal length from 400mm to 1200mm, exhibit the same characteristics of shorter telephoto lenses, only to a much greater degree. Depth-of-field is almost limited to the plane of focus unless the lens is stopped down. And the compressed perspective literally stacks up subjects that are in reality a great distance apart. There is no substitute for a Nikon super-telephoto lens when it's impossible to approach the subject, as when photographing a space launch or dangerous wildlife. All super-telephoto Nikkor lenses are made with Extra-Low Dispersion glass for unprecedented image quality and color correction, even when shooting at their maximum apertures. Plus, internal focusing construction keeps them relatively compact with closer focusing capability.

## **Nikon 400mm Lenses**

### **400mm f3.5 ED-Nikkor IF** **400mm f5.6 ED-Nikkor IF**

The 400mm Nikkor lenses provide 8X magnification compared to a normal 50mm lens. Designed for quick handling,

both offer a click-stop rapid focusing setting and short barrel rotation to move from infinity to about 15 ft. Other conveniences include a built-in lens hood and rotatable tripod mounting socket. The 400mm f3.5 uses internal 39mm filters while the f5.6 lens can accept 72mm size. Both are supplied with lens case.

## **Nikon 600 mm Lenses**

### **600mm f4 ED-Nikkor IF** **600mm f5.6 ED-Nikkor IF**

Twelve times more powerful than a normal lens, the 600mm Nikkors can present some once-in-a-lifetime photographic opportunities. The 600mm f4 ED-Nikkor IF comes with a Nikon TC-14 Tele Converter which transforms it into an 840mm f5.6 super-telephoto. Both lenses feature a built-in lens hood, rotating tripod socket, and rapid focus control. The lenses have a special slip-in filter holder that accepts 39mm screw-in filters. Despite their extreme focal length, the 600mm Nikkor lenses remain compact with close focusing capability thanks to their internal focusing design. Supplied with case.

## **Nikon 800 mm Lens**

### **800mm f8 ED-Nikkor IF**

The 800mm f8 ED-Nikkor IF is a focal length virtually exclusive to the Nikon system. Unlike mirror optics, the 800mm Nikkor provides variable apertures for depth-of-field control. And, its internal focusing construction keeps the lens compact. Like other Nikon super-telephoto lenses, the 800mm has a slip-in filter holder for 39mm threaded filters, a telescopic lens hood and rotating tripod socket for convenient horizontal or vertical operation.

## **Nikon 1200 mm Lens**

### **1200mm f11 ED-Nikkor IF**

Only Nikon manufactures a 1200mm lens with automatic diaphragm and Nikon is the only photographic system to offer this extreme focal length—24X the reach of a normal lens with a narrow, 2° angle of view. It incorporates a slip-in filter holder that accepts 39mm threaded filters, lens hood and rotating tripod mounting collar. Supplied with case.

See page 18 for complete product specifications.

# Nikon Mirror Lenses



Mirror lenses (also known as reflex lenses) pack an extra-long focal length into a short lens barrel. Based on the principal of astronomical telescopes, Nikon mirror telephotos employ glass and mirror elements to fold the optical light path inside the lens. And a shorter lens means a lighter and more compact lens, two important qualities to consider when choosing a telephoto. As an added benefit, the optical design eliminates chromatic aberrations for outstanding sharpness. With Nikon mirror telephotos, out-of-focus highlights are reproduced as doughnut-shaped blurs. To match any super-telephoto requirement, Nikon has three mirror lenses available. All provide fully automatic exposure control with Nikon's aperture-priority automatic cameras.

## **Nikon 500mm Lens** **500mm f8 Reflex-Nikkor**

The 500mm f8 Reflex-Nikkor mirror lens is a compact, hand-holdable telephoto that focuses to 13 ft. It's the choice for travel, and ideal for photo-journalism, sports and wildlife photography. As part of the optical design, the 500mm Nikkor is supplied with a set of five, 39mm rear-mount filters (ultraviolet, yellow, orange, red and 4X neutral density for exposure control). Supplied with case and screw-in lens hood.

## **Nikon 1000mm Lens** **1000mm f11 Reflex-Nikkor**

For its focal length, the 1000mm f11 Reflex-Nikkor is very compact. It's under 10 in. long, and can be used hand-held, but also incorporates a rotatable tripod mounting collar. For rapid focusing down to about 26 ft., there's a focusing handle with two

screw-in positions. The lens is supplied with five 39mm rear-mount filters (ultraviolet, light amber, light blue, orange and 4X neutral density) and has a built-in lens hood. The perfect focal length for solar and lunar photography. Supplied with case.

## **Nikon 2000mm Lens** **2000mm f11 Reflex-Nikkor**

The 2000mm f11 Reflex-Nikkor is the last step before mounting a Nikon camera directly on an astronomical telescope. It provides 40 times the reach of a normal lens. For convenient framing, a peep sight is built into the carrying handle. The lens has two tripod sockets for vertical or horizontal mounting and an accessory mounting yoke is available. The 2000mm Nikkor comes with four filters (ultraviolet, yellow, orange and red) built into a revolving turret.



There are 10 Nikon zoom lenses spanning a range from 25mm wide angle through 1200mm super-telephoto. In the zoom lens category, Nikon's quality control really shines with precision assembly of up to 20 separate glass elements. In the Nikon system, zoom lens performance is comparable to images produced with fixed focal length lenses. In terms of convenience zoom lenses are unsurpassed, incorporating many focal lengths in a single lens. Photographers can shoot an overall scene and zoom in for details from a single position. Nikon zoom lenses are true zooms, remaining accurately focused as the focal length is changed. And, all Nikon zoom lenses have fixed maximum apertures which prevent exposure surprises. One of the biggest attractions of zoom lenses is their ability to create zoom-blurs which impart a feeling of motion to stationary subjects.

### **25-50mm f4 Zoom-Nikkor**

The 25-50mm f4 provides wide angle to normal picture coverage for infinite versatility in interior, landscape and travel photography. The quality of this Nikkor zoom lens can

be seen from its virtual distortion-free images and drift-free focus during zooming. The lens focuses to about 2 ft.

### **35-70mm f3.5 Zoom-Nikkor**

The 35-70mm f3.5, covering moderate wide angle through telephoto focal lengths, is the first Nikkor zoom to incorporate a macro focusing mode. Its closest focusing distance, 27.5 in., is cut in half when the macro mode is engaged at the 70mm position for a reproduction ratio of one-quarter life-size.

### **36-72mm f3.5 Series E**

This compact zoom lens is a popular alternative to a fixed normal lens. It features a one-touch control ring for quick framing and focusing. Plus, a fixed maximum aperture that won't change as the lens is zoomed. The lens normally focuses to 4 ft. Adding Nikon's 52mm close-up attachment lenses provides even closer focusing with virtually no loss of image quality.

### **70-210mm f4 Series E**

The 70-210 f4 is a compact one-touch lens with a 3:1 zooming ratio and macro focusing capability. The lens

normally focuses to 5 ft. for very tight head shots. When the macro function is engaged at the lens' 70mm position, it focuses as close as 2 ft. while maintaining high resolution and contrast. In pictures, there's no apparent loss in sharpness.

### **75-150mm f3.5 Series E**

At its modest cost, the 75-150mm f3.5 offers unprecedented performance throughout its telephoto zooming range. Less than 5 in. long, it focuses as close as 39.4 in. at every focal length with fast, one-touch zoom/focus control.

### **80-200mm f4 Zoom-Nikkor**

The 80-200mm Nikkor zoom features a wide, f4, maximum aperture for an extremely bright viewfinder image. Its one-touch design affords fast framing and focusing with precise (not loose) action. An extremely flexible zoom, the 80-200mm can be focused down to 4 ft. for reproductions at approximately one-quarter life-size. Image quality is superb throughout its zoom and focus range.

See page 19 for complete product specifications.

# Nikon Zoom Lenses



## **50-300mm f4.5 Zoom-Nikkor ED**

The 50-300mm f4.5 is a high ratio zoom to meet the demands in sports photography and photojournalism. Its 6X zoom range covers all normal and telephoto needs. ED glass is used to guarantee superlative color rendition and image sharpness in a compact lens configuration.

## **180-600mm f8 Zoom-Nikkor ED**

The 180-600mm is an incredible zoom that actually focuses closer than a fixed focal length lens at its maximum range. It features one-touch zoom/focus control for fast, easy handling and incorporates Extra-Low Dispersion glass for outstanding contrast and color correction.

Includes built-in cantilevered rotatable tripod collar for well-balanced operation.

## **200-600mm f9.5 Zoom-Nikkor**

The 200-600mm Nikkor is the lightest super-telephoto zoom lens Nikon offers, perfect for sports or news coverage. It features a one-touch zoom/focus control with a locking screw, and focuses as close as 7.5 ft. with the supplied accessory close-up lens. A rotating tripod socket and lens shade are included.

## **360-1200mm f11 Zoom-Nikkor ED**

The Nikon 360-1200mm is the longest zoom lens available for 35mm photography, encompassing a 3.3X super-telephoto range. It features ED glass for outstanding picture clarity. The combined zoom and focusing ring has four screw-in handles for rapid response. A cantilevered rotatable collar is built-in for well balanced vertical or horizontal tripod operation.

See page 19 for complete product specifications.



## New Zooms To Take You Wider, Faster And Closer Than Ever Before.

With the introduction of these four new zoom lenses, the Nikon system now includes 14 variable focal-length optics. Each delivers exceptional performance, on a par with Nikon's fixed focal-length lenses, while adding flexibility and versatility to a photographer's lens system. They all incorporate Nikon's own optical glass and multi-layer Nikon Integrated Coating (NIC) for optimum image brightness, minimum flare and superior color rendition.

### 35-105mm f3.5-4.5 Zoom-Nikkor

The 35-105mm Nikkor is a very compact zoom with a focal-length range that covers the vast majority of picture-taking situations. While its optical design is quite complex, it was designed with a variable maximum aperture to keep the lens small: f3.5 at 35mm, changing to f4.5 at 105mm. However, this will present no exposure problems or variations with Nikon's aperture-priority automatic cameras or during TTL flash photography. A single control collar is used for zooming and focusing down to 5 ft. in its normal focusing mode. Additionally, the lens allows macrofocusing down to 10.6 in. over a focal-length range of 50mm to 105mm, for a maximum reproduction ratio of one-quarter life-size (1:4). This lens accepts Nikon's standard 52mm filters and accessories.

### 50-135mm f3.5 Zoom-Nikkor

With an angle of coverage that is continuously variable from normal through moderate telephoto and a fast, f3.5 maximum aperture, the 50-135mm Zoom-Nikkor is a great general-purpose lens, well-suited for a number of applications from travel and portraiture to photo-journalism. A single nonslip zoom/focus ring allows photographers to turn for focus and push/pull to zoom, all in one fluid motion. The lens stays in perfect focus as it is zoomed. At the normal settings, the 50-135mm focuses from 4.5 ft. to infinity, as close as a fixed 135mm Nikon lens. Macro-focusing down to 2 ft. is possible at the 50mm focal-length setting, for a 0.1X magnification ratio. Photographers who use polarizing filters will appreciate the fact that the front attachment threads do not turn as the lens is focused.

### 80-200mm f2.8 ED Zoom-Nikkor

The 80-200mm f2.8 ED lens represents another first from Nikon—the world's fastest telephoto zoom lens. Featuring a maximum aperture of f2.8, this zoom is fast enough to produce the bright viewfinder image required for pinpoint focusing in most existing light situations. And Nikon's Extra Low Dispersion (ED) glass eliminates secondary chromatic aberration for outstanding image quality throughout its aperture range. The lens incorporates a rotating tripod mounting collar and a one-

touch zoom/focus control with special zoom-lock thumbscrew that allows the user to lock in the focal length. The lens accepts 95mm screw-in filters and lens attachments. Due to the unique manufacturing requirements of this lens, quantities will be limited.

### 200-400mm f4 ED Zoom-Nikkor

Designed to meet the critical needs of photographers shooting sports, wildlife and other photographic telephoto applications, the 200-400mm f4 ED Nikkor provides both the range and the speed necessary to capture the world's greatest pictures. Plus it incorporates ED optical glass for superior overall image quality, especially at maximum aperture. A rotating tripod mounting collar ensures ideal balance when the lens is used on a tripod and further facilitates hand-held photography when attached to a Nikon Pistol Grip or other gun-stock-type support. The 13-ft. minimum focusing distance is maintained even when attached to a Nikon teleconverter, which transforms this lens into a long-range 400-800mm f8 zoom. Its front thread attachment size is 122mm. A lens hood is built-in.

# Technical Specifications

## Technical Specifications: Nikon Zoom Lenses

Product Number	Lens	Aperture Range	Angle of View	Elements/ Groups	Diaphragm	Minimum Focus	Filter Size	Dimensions (diam x lgth)	Weight	Lens Hood	Lens Case
1477	35-105mm f3.5-4.5	f3.5-f22	62°-23°20'	16/12	Auto	5' (1.4m) macro: 10.6" (0.27m)	52mm	2.5 x 3.7 in. (64 x 95mm)	18 oz. (510g)	HK-11	CL-33S
1479	50-135mm f3.5	f3.5-f32	46°-18°	16/13	Auto	4.5' (1.3m) macro: 2' (0.6m)	62mm	2.8 x 5.2 in. (71 x 133mm)	24.7 oz. (700g)	HK-10	CL-38
1480	80-200mm f2.8	f2.8-f32	30°10' - 12°20'	15/11	Auto	10' (2.5m)	95mm	3.9 x 9.1 in. (99 x 231mm)	4.2 lb. (1.9kg)	HN-25	CL-66
*	200-400mm f4	f4-f32	12°-6°	15/10	Auto	13' (4m)	122mm	5.3 x 13.1 in. (134 x 332 mm)	7.9 lb (3.6kg)	Built-in	—

\*Price and availability of 200-400mm f4 ED Zoom-Nikkor will be announced.

Specifications subject to change without notice.



Nikon micro lenses are dual-purpose optics that exhibit exceptional image quality throughout their focusing range. Each of three available Nikon micro lenses, a 55mm, 105mm and 200mm, works like a regular lens in all respects, but can be focused continuously from infinity, close enough for one-half life-size reproductions. The difference in using the three Micro-Nikkors for close-up photography lies in their subject-to-lens working distance and apparent compression of perspective. The 55mm is well suited for slide duplicating and work on a copy stand. With their greater working distances, the 105mm and 200mm Micro-Nikkors leave you more room to illuminate a subject as well as provide a safe shooting distance from dangerous or otherwise inaccessible subjects. Attach the appropriate extension ring or teleconverter and these Nikon micro lenses can be focused close enough for full life-size reproductions.

### **Nikon 55mm Micro Lens** **55mm f2.8 Micro-Nikkor**

The 55mm f2.8 Micro-Nikkor is a custom-designed close-up lens with the versatility to be used for general purpose applications as well. It focuses from infinity down to nine inches (film plane to subject distance), for a 1:2 (1/2 life-size) reproduction ratio.

The recessed front lens element and multilayer Nikon Integrated Coating help increase contrast and reduce flare. Its floating element optical design results in superior center-to-edge sharpness, overall correction of aberrations and flatness of field throughout the entire focusing range. The lens has two magnification scales on the barrel, one for use with the lens alone, and the other with the PK-13 extension ring. This extension ring extends the magnification of the lens for reproductions as large as life-size (1:1). Or, add the Nikon TC-200 teleconverter and change this 55mm lens into a 110mm f5.6 Micro, which focuses from infinity to life-size.

### **Nikon 105mm Micro Lens** **105mm f4 Micro-Nikkor**

The 105mm f4 Micro-Nikkor is another superlative close-up lens, providing photographers with a considerably longer working distance. This extra room facilitates subject illumination, improves access and maintains almost natural perspective. A 105mm Micro-Nikkor can focus continuously from infinity down to 18 inches (film plane to subject distance). The lens focuses even closer, for full life-size shooting, when the

PN-11 extension ring is added. A lens barrel locking screw allows photographers to lock in any reproduction ratio for fast handling without accidentally changing the selected focus. The performance of this lens is further enhanced by Nikon's multilayer coating and extra-long, built-in lens hood.

### **Nikon 200mm Micro Lens** **200mm f4 Micro-Nikkor IF**

The 200 f4 Micro-Nikkor IF can produce half life-size images from a shooting distance of 24 inches (film plane to subject distance). The internal focusing optical design provides two distinct advantages. Handling and balance is improved because the physical length of the lens remains unchanged throughout the range of focus. And, there's no need to calculate an exposure compensation factor. The 200mm Micro-Nikkor features a removable rotating tripod socket and built-in lens hood. When attached to the Nikon TC-300 teleconverter, it's transformed into a 400mm f8 lens that has the capability of focusing continuously from infinity down to 1:1. (The TC-200 teleconverter may also be used.)

See page 19 for complete product specifications.

# Nikon Medical Lens



## 120mm f4 Medical-Nikkor IF

Nikon's 120mm Medical-Nikkor lens features internal focusing and a built-in Xenon ring light that provides for auto-flash exposures with any Nikon camera. It is easy to use, even for those persons with no photographic training. The lens focuses continuously for reproductions from 1/11X down to life-size. Maximum 2:1 reproduction is possible by adding the supplied close-up lens.

Internal focusing mechanism keeps the size down and barrel length constant while focusing, making it easy to hand hold. An interlock

mechanism adjusts the diaphragm as the lens is focused so no exposure calculations are necessary. When the close-up accessory lens is used, the lens aperture locks at f/32 for reproduction ratios from 0.8X to 2X.

The built-in modeling lamp makes critical focusing easy. And a special internal lens projects a selected magnification ratio into the corner of the viewfinder as a working

reference. This ratio can also be imprinted on the film for a permanent record on the shot being made.

In the lab or studio, power pack LA-2 can be plugged into an AC outlet for a constant, economical power source. The DC battery pack LD-2, powered by eight "AA" penlight cells, increases the versatility, making it portable for field use by nature photographers.

### Technical Specifications: Medical-Nikkor 120mm f4 IF

**Lens Construction:** 9 elements in 6 groups

**Picture Angle:** 20°30'

**Distance Scale:** 1.6m (63 in.) to 0.35m (14 in.) for 1/11x to 1x; 0.33 (13 in.) to 0.26m (10 in.) for 0.8x to 2x

**Aperture Range:** f4-f32

**Diaphragm:** Fully automatic; guide number system sets appropriate aperture as lens is focused

**Reproduction Ratio:** From 1/11x to 1x; 0.8x to 2x with close-up lens

**Flash Illumination:** Xenon ring-flash tube; flash output controlled by silicon controlled rectifier and series circuitry

**Data Imprinting:** Marked (1/11x-2x) can be recorded on lower right-hand corner of film; DATA OFF button to shoot without recording magnification

**Focusing Lamp:** Built-in focusing lamp lights for 16 sec. after finger is lifted from control button; turns off when shutter release is depressed

**Flash-Ready Light:** On lens barrel; reproduction ratio seen in viewfinder indicates flash ready

**Filter Size:** 49mm

**Attachment Lens:** 49mm accessory close-up lens supplied

**Power Source:** Power pack LA-2 for AC, standard 115V household current. Power pack LD-2 for DC battery source (requires 8 "AA" penlight batteries)

**Dimensions:** 3.9 x 5.9 in. (98 x 150mm)

**Weight:** 31.4 oz. (890g) prime lens only

**Product Number:** 983;

LA-2, Prod. No. 4506; LD-2, Prod. No. 4505;  
Compartment Case, Prod. No. 4509

Specifications subject to change without notice.

## Nikon Perspective Control Lenses



Nikon's perspective control lenses provide the 35mm photographer with shooting flexibility once only possible from view cameras. With most 35mm camera lenses, shooting upwards causes parallel lines to converge, which makes tall buildings appear to fall backwards in a picture. But Nikon perspective control lenses incorporate a unique mechanical design and wider covering power which allows the lens to be shifted off its optical axis by as much as 11mm, and the whole lens mount rotates through a full 360°. This movement effectively corrects perspective convergence. PC-Nikkors are particularly useful in interior and architectural photography, but can also be used to produce perfectly-matched two-shot panoramas for industrial work or multimedia audio-visual presentations.

### **Nikon 28mm Perspective Control Lens 28mm f3.5 PC-Nikkor**

The 28mm f3.5 PC-Nikkor is a compact lens with wide, 92° covering power and a 74° angle of view. Its optical design provides exceptional correction for coma, an aberration that can deteriorate off-axis images, and practically eliminates light falloff for even illumination and ultimate perspective control across the field. This 28mm focuses to one foot and incorporates a 72mm accessory thread. Both PC-Nikkors provide heavy-duty milled knobs for shift adjustments with graduated scales in precise 1mm intervals.

### **Nikon 35mm Perspective Control Lens 35mm f2.8 PC-Nikkor**

The 35mm PC-Nikkor has a fast, f2.8 maximum aperture for brighter focusing, and stops down to f32 for greater depth-of-field control. Total covering power of 78° assures uniform performance and continuously high resolution throughout the entire picture area. The lens focuses to one foot and has a standard 52mm filter thread. Both lenses provide click-stops at each 30° rotation point, and have an all-black professional finish.

See page 19 for complete product specifications.

# Nikon Teleconverters



Nikon teleconverters, introduced at the 1976 Montreal Olympics, increase the effective focal length of the lens while maintaining the outstanding imaging characteristics of the prime lens. As supplementary optics, they mount between lens and camera body and maintain automatic diaphragm operation and meter coupling. Nikon's Integrated multilayer Coating (NIC) is applied to each lens surface so that the resulting contrast, resolution and color rendition of the reproduction is up to Nikon's high standards. The use of a teleconverter

not only increases the focal length, it also decreases the maximum aperture and depth of field. Besides being an economical way of doubling the flexibility of your lenses, these teleconverters can also save a great deal of weight and space for the travelling photographer.

### • Nikon TC-14 Teleconverter

For most lenses 300mm and longer; increases the focal length 1.4 times; decreases effective maximum aperture one stop.

### • Nikon TC-200 Teleconverter

For most lenses up to 200mm; doubles the focal length; decreases effective maximum aperture two stops.

### • Nikon TC-300 Teleconverter

For most lenses 300mm and longer; doubles the focal length; decreases the effective maximum aperture two stops.

See page 19 for complete product specifications.

## Lens/Teleconverter Compatibility Chart

Lens	TC-200	TC-300	TC-14	Lens	TC-200	TC-300	TC-14
<b>Fisheye</b>				<b>Telephoto cont.</b>			
6mm f2.8 Fisheye	o	x	x	200mm f4	o	x	x
8mm f2.8 Fisheye	o	x	x	300mm f2.8 ED-IF	t	o	o
16mm f2.8 Fisheye	o	x	x	300mm f4.5	t	o*	o
<b>Wide-angle</b>				300mm f4.5 ED-IF	t	o	o
13mm f5.6	o	x	x	400mm f3.5 ED-IF	t	o	o
15mm f3.5	o	x	x	400mm f5.6 ED-IF	t	o	o
18mm f3.5	o	x	x	600mm f4 ED-IF	t	o	o
20mm f3.5	o	x	x	600mm f5.6 ED-IF	t	o	o
24mm f2	o	x	x	800mm f8 ED-IF	t	o	o
24mm f2.8	o	x	x	1200mm f11 ED-IF	t	o	o
28mm f2	o	x	x	<b>Reflex</b>			
28mm f2.8	o	x	x	500mm f8 Reflex	o	x	T
28mm f2.8 E	o	x	x	1000mm f11 Reflex	t	T	T
28mm f3.5	o	x	x	2000mm f11 Reflex	t	o	o
35mm f1.4	(o*)	x	x	<b>Zoom</b>			
35mm f2	o	x	x	25-50mm f4	o	x	x
35mm f2.5 E	o	x	x	35-70mm f3.5	o	x	x
35mm f2.8	o	x	x	36-72mm f3.5E	o	x	x
<b>Normal</b>				70-210mm f4 E	o	x	x
50mm f1.2	(o)	x	x	75-150mm f3.5 E	o	x	x
50mm f1.4	(o)	x	x	80-200mm f4	o	x	x
50mm f1.8	(o)	x	x	50-300mm f4.5 ED	o	x	x
50mm f1.8 E	(o)	x	x	180-600mm f8 ED	t	o	o
<b>Telephoto</b>				200-600mm f9.5	t	o	o
85mm f1.4	(o*)	x	x	360-1200mm f11 ED	t	o	o
85mm f2	o	x	x	<b>Special</b>			
105mm f1.8	(o*)	x	x	28mm f3.5 PC	t	x	x
105mm f2.5	o	x	x	35mm f2.8 PC	t	x	x
135mm f2	o*	x	o	58mm f1.2 Noct	(o*)	x	x
135mm f2.8	o*	x	x	55mm f2.8 Micro	o	x	x
135mm f2.8 E	o	x	x	105mm f4 Micro	t	o	x
135mm f3.5	o	x	o	200mm f4 Micro IF	t	o	o
180mm f2.8 ED	o*	x	x	120mm f4 Medical IF	x	x	x
200mm f2 ED-IF	o	x	o				

### Notes on Teleconverters:

- o Usable
- o\* Usable, but when used at smaller aperture than f11 with high shutter speeds, there is occasional uneven exposure.
- t Usable, but there is occasional vignetting
- T Usable, if the filter is removed
- x Cannot be used
- \* With Focusing Unit AU-1
- ( ) Do not use lens at aperture setting wider than f2

Specifications subject to change without notice.

# Technical Specifications

Product Number	Lens	Aperture Range	Angle of View	Elements / Groups	Diaphragm	Minimum Focus	Filter Size	Dimensions (diam x lgth)	Weight	Lens Hood	Lens Case
<b>Fisheye</b>											
1405	6mm f2.8	f2.8-f22	220°	12/9	Auto	9.8" (0.25m)	Built-in	9.3x6.7 in. (236x171mm)	11 lb. 8 oz. (5.2kg)	—	Metal (Supplied)
1402	8mm f2.8	f2.8-f22	180°	10/8	Auto	11.8" (0.3m)	Built-in	4.8x5.5 in. (123x139mm)	2 lb. 6 oz. (1.1kg)	—	CL-11
1408	16mm f2.8	f2.8-f22	180°	8/5	Auto	11.8" (0.3m)	Four filters provided	2.5x2.6 in. (63x66mm)	11.6 oz. (330g)	Built-in	CL-30S, No. 61, CP-8
<b>Ultra-Wide Angle</b>											
1410	13mm f5.6	f5.6-f22	118°	16/12	Auto	11.8" (0.3m)	Four filters provided	4.5x3.9 in. (115x99mm)	2 lb. 10 oz. (1.2kg)	Built-in	CL-14
1412	15mm f3.5	f3.5-f22	110°	14/11	Auto	11.8" (0.3m)	Four filters provided	3.5x3.7 in. (90x94mm)	22.2 oz. (630g)	Built-in	CL-17
1413	18mm f3.5	f3.5-f22	100°	11/10	Auto	9.8" (0.25m)	72mm	3x2.9 in. (75x72.5mm)	12.3 oz. (350g)	HK-9 (Supplied)	CL-37 (Supplied)
1414	20mm f3.5	f3.5-f22	94°	11/8	Auto	11.8" (0.3m)	52mm	2.5x2 in. (63x50mm)	8.3 oz. (235g)	HK-6	CL-30S, No.61, CP-8
<b>Wide Angle</b>											
1417	24mm f2	f2-f22	84°	11/10	Auto	11.8" (0.3m)	52mm	2.5x2.5 in. (63x63mm)	10.6 oz. (300g)	HK-2	CL-31S, No. 61, CP-8
1416	24mm f2.8	f2.8-f22	84°	9/9	Auto	11.8" (0.3m)	52mm	2.5x2.2 in. (63x57mm)	8.8 oz. (250g)	HN-1	CL-30S, No. 61, CP-8
1419	28mm f2	f2-f22	74°	9/8	Auto	9.8" (0.25m)	52mm	2.5x2.7 in. (63x68.5mm)	12.7 oz. (360g)	HN-1	CL-31S, No. 61, CP-8
1420	28mm f2.8	f2.8-f22	74°	8/8	Auto	7.9" (0.2m)	52mm	2.5x2.1 in. (63x53mm)	8.8 oz. (250g)	HN-2	CL-30S, No. 61, CP-8
1226	28mm f2.8E	f2.8-f22	74°	5/5	Auto	11.8" (0.3m)	52mm	2.5x1.8 in. (62.5x44.5mm)	5.3 oz. (150g)	HR-6	CL-30S, No. 61
1421	28mm f3.5	f3.5-f22	74°	6/6	Auto	11.8" (0.3m)	52mm	2.5x2.1 in. (63x54.5mm)	7.8 oz. (220g)	HN-2	CL-30S, No. 61, CP-8
1429	35mm f1.4	f1.4-f16	62°	9/7	Auto	11.8" (0.3m)	52mm	2.7x2.9 in. (67.5x74mm)	14.1 oz. (400g)	HN-3	CL-31S, No. 61, CP-8
1428	35mm f2	f2-f22	62°	8/6	Auto	11.8" (0.3m)	52mm	2.5x2.3 in. (63x59.5mm)	9.9 oz. (280g)	HN-3	CL-31S, No. 61, CP-8
1227	35mm f2.5E	f2.5-f22	62°	5/5	Auto	11.8" (0.3m)	52mm	2.5x1.8 in. (62.5x44.5mm)	5.3 oz. (150g)	HR-4	CL-30S, No. 61
1427	35mm f2.8	f2.8-f22	62°	5/5	Auto	11.8" (0.3m)	52mm	2.5x2.1 in. (63x54mm)	8.4 oz. (240g)	HN-3	CL-30S, No. 61, CP-8
<b>Normal</b>											
1435	50mm f1.2	f1.2-f16	46°	7/6	Auto	19.7" (0.5m)	52mm	2.7x2.3 in. (68.5x59mm)	13.4 oz. (380g)	HS-12, HR-2	CL-34A, No. 61, CP-8
1433	50mm f1.4	f1.4-416	46°	7/6	Auto	17.7" (0.45m)	52mm	2.5x2 in. (63x50.5mm)	8.8 oz. (250g)	HS-9, HR-1	CL-34A, No. 61, CP-8
1434	50mm f1.8	f1.8-f22	46°	6/5	Auto	17.7" (0.45m)	52mm	2.5x1.9 in. (63.5x48mm)	7.4 oz. (210g)	HS-11, HR-1	CL-30S, No. 61, CP-8
1231	50mm f1.8E	f1.8-f22	46°	6/5	Auto	23.6" (0.6m)	52mm	2.5x1.3 in. (62.5x33mm)	4.8 oz. (135g)	HR-4	CL-30S, No. 61

# Technical Specifications

Product Number	Lens	Aperture Range	Angle of View	Elements / Groups	Diaphragm	Minimum Focus	Filter Size	Dimensions (diam x lgth)	Weight	Lens Hood	Lens Case
<b>Telephoto</b>											
1450	85mm f1.4	f1.4-f16	28°30'	7/5	Auto	33.5" (0.85m)	72mm	3.2x2.9 in. (80.5x72.5mm)	21.9 oz. (620g)	HN-20 (Supplied)	CL-34A, No. 62
1451	85mm f2	f2-f22	28°30'	5/5	Auto	33.5" (0.85m)	52mm	2.5x2.4 in. (63x60.5mm)	10.9 oz. (310g)	HS-10 (Supplied), HN-7	CL-31S, No. 62, CP-8
1457	105mm f1.8	f1.8-f22	23°30'	5/5	Auto	39.4" (1m)	62mm	3.1x3.5 in. (78.5x88.5mm)	20.5 oz. (580g)	Built-in	CL-15S No. 62
1456	105mm f2.5	f2.5-f22	23°30'	5/4	Auto	39.4" (1m)	52mm	2.5x3.1 in. (64x77.5mm)	15.3 oz (435g)	Built-in	CL-32S No. 62, CP-9
1459	135mm f2	f2-f22	18°	6/4	Auto	4'4" (1.3m)	72mm	3.2x4.1 in. (80.5x103mm)	30.3 oz. (860g)	Built-in	CL-15S, No. 62
1162	135mm f2.8	f2.8-f32	18°	5/4	Auto	4'4" (1.3m)	52mm	2.5x3.6 in. (64.5x91.5mm)	15.3 oz. (435g)	Built-in	CL-32S, No. 62, CP-9
1236	135mm f2.8E	f2.8-f32	18°	4/4	Auto	4'11" (1.5m)	52mm	2.5x3.5 in. (62.5x88.5mm)	13.9 oz. (395g)	Built-in	CL-32S, No. 62, CP-9
1160	135mm f3.5	f3.5-f32	18°	4/4	Auto	4'4" (1.3m)	52mm	2.5x3.5 in. (64x89.5mm)	14.8 oz. (420g)	Built-in	CL-32S, No. 62, CP-9
1464	180mm f2.8 ED	f2.8-f32	13°40'	5/5	Auto	5'11" (1.8m)	72mm	3.1x5.4 in. (78.5x138mm)	28.2 oz. (800g)	Built-in	CL-35A, No. 63
1196	200mm f2 ED-IF	f2-f22	12°20'	10/8	Auto	8'2" (2.5m)	122mm	5.4x8.7 in. (138x222mm)	5 lb. 5 oz (2400g)	Built-in	CL-63
1167	200mm f4	f4-f32	12°20'	5/5	Auto	6'7" (2m)	52mm	2.6x4.9 in. (65x124mm)	18 oz. (510g)	Built-in	CL-13, No. 63, CP-9
1471	300mm f2.8 ED-IF	f2.8-f22	8°10'	8/6	Auto	13' (4m)	39mm 122mm	5.4x9.8 in. (138x249mm)	5 lb. 8 oz. (2.5kg)	Built-in	CL-63 (Supplied)
1488	300mm f4.5 ED-IF	f4.5-f32	8°10'	7/6	Auto	8'2" (2.5m)	72mm	3.1x7.9 in. (80x200mm)	2 lb. 3 oz. (990g)	Built-in	CL-36
1470	300mm f4.5	f4.5-f32	8°10'	6/5	Auto	11'6" (3.5m)	72mm	3.1x8 in. (78.5x202mm)	2 lb. 10 oz. (1.2kg)	Built-in	CL-20A
<b>Super-Telephoto</b>											
1473	400mm f3.5 ED-IF	f3.5-f22	6°10'	8/6	Auto	14'10" (4.5m)	39mm 122mm	5.3x11.9 in. (134x304mm)	6 lb. 3 oz. (2.8kg)	Built-in	CL-61A (Supplied)
1489	400mm f5.6 ED-IF	f5.6-f32	6°10'	7/6	Auto	13' (4m)	72mm	3.3x10.3 in. (85x262mm)	2 lb. 10 oz. (1.2kg)	Built-in	CL-27A (Supplied)
1498	600mm f4 ED-IF	f4-f22	4°10'	8/6	Auto	21'4" (6.5m)	39mm 160mm	7x18.1 in. (177x460mm)	13 lb. 14 oz. (6.3kg)	Built-in	CT-601 (Supplied)
1193	600mm f5.6 ED-IF	f5.6-f32	4°10'	7/6	Auto	18' (5.5m)	39mm 122mm	5.3x14 in. (134x382mm)	5 lb. 15 oz. (2.7kg)	Built-in	CL-62A (Supplied)
1495	800mm f8 ED-IF	f8-f32	3°	9/7	Auto	32'10" (10m)	39mm 122mm	5.3x18.1 in. (134x460mm)	7 lb. 5 oz. (3.3kg)	Built-in	CT-1203 (Supplied)
1195	1200mm f11 ED-IF	f11-f32	2°	9/8	Auto	45'11" (14m)	39mm 122mm	5.3x22.7 in. (134x577mm)	8 lb. 10 oz. (3.9kg)	Built-in	CT-1203 (Supplied)
<b>Reflex</b>											
950	500mm f8	f8	5°	5/3	Fixed	13' (4m)	39mm	3.7x5.6 in. (93x142mm)	2 lb. 3 oz. (1kg)	Screw-in	CL-23 (Supplied)
952	1000mm f11	f11	2°30'	5/5	Fixed	26'2" (8m)	39mm	4.7x9.5 in. (119x241mm)	4 lb. 3 oz. (1.9kg)	Built-in	CL-29 (Supplied)
978	2000mm f11	f11	1°10'	5/5	Fixed	59' (18m)	Built-in	10.3x23.5 in. (262x598mm)	38 lb. 10 oz. (17.5kg)	Built-in	Metal (Supplied)

# Technical Specifications

Product Number	Lens	Aperture Range	Angle of View	Elements/ Groups	Diaphragm	Minimum Focus	Filter Size	Dimensions (diam x lgth)	Weight	Lens Hood	Lens Case
<b>Zoom</b>											
1485	25-50mm f4	f4-f22	80°40' - 47°50'	11/10	Auto	23.6" (0.6m)	72mm	3x4.4 in. (75x112mm)	21.2 oz. (600g)	HK-7	CL-15A, No. 62, CP-9
1478	35-70mm f3.5	f3.5-f22	62°-34°20'	10/9	Auto	27.6" (0.7m) macro: 13.8" (0.35m)	62mm	2.6x4.1 in. (66.5x105mm)	18.3 oz. (520g)	HN-22	CL-33S, No. 62, CP-9
1245	36-72mm f3.5E	f3.5-f22	62°-33°30'	8/8	Auto	3' 11" (1.2m)	52mm	2.6x2.8 in. (67x71.5mm)	13.4 oz. (380g)	HK-8	CL-32S, No. 62
1483	50-300mm f4.5ED	f4.5-f32	46°-8°10'	15/11	Auto	8' 2" (2.5m)	95mm	3.9x9.7 in. (98x247mm)	4 lb. (1.95kg)	HK-5	CE-2 (Separate) CL-64 (Supplied)
1248	70-210mm f4E	f4-f32	34°20' - 11°50'	13/9	Auto	4' 11" (1.5m) macro: 22" (0.56m)	62mm	2.9x6.1 in. (72.5x156mm)	25.7 oz. (730g)	HN-24	CL-35A, No. 63
1247	75-150mm f3.5	f3.5-f32	31°40' -17°	12/9	Auto	39.4" (1m)	52mm	2.6x4.9 in. (65x125mm)	18.3 oz. (520g)	HN-21	CL-13, No. 63
1484	80-200mm f4	f4-f32	30°10' - 12°-20'	13/9	Auto	3' 11" (1.2m)	62mm	2.9x6.4 in. (73x162mm)	28.6 oz. (810g)	HN-23	CL-35A, No. 63
1490	180-600mm f8ED	f8-f32	13°40' - 4°10'	18/11	Auto	8' 2" (2.5m)	95mm	4.1x15.8 in. (105x402mm)	7 lb. 8 oz. (3.6kg)	HN-16	CZ-1860
1487	200-600mm f9.5	f9.5-f32	12°20' - 4°10'	19/12	Auto	13' (4m)	Series 9	3.5x15 in. (89x381mm)	5 lb. 8 oz. (2.5kg)	HN-10	CE-3 CL-65
1287	360-1200mm f11ED	f11-f32	6°50' -2°	20/12	Auto	19' 8" (6m)	122mm	4.9x27.7 in. (125x704mm)	15 lb. 11 oz. (7.1kg)	HN-17 (Supplied)	CZ-3612
<b>Special Purpose</b>											
1439	58mm f1.2 Noct	f1.2-f16	40°50'	7/6	Auto	19.7" (0.5m)	52mm	2.9x2.5 in. (74x63mm)	16.4 oz. (465g)	HS-7, HR-2	CL-34A, No. 62, CP-8
1442	55mm f2.8 Micro	f2.8-f32	43°	6/5	Auto	9.8" (0.25m)	52mm	2.5x2.8 in. (63.5x70mm)	10.2 oz. (290g)	HN-3	CL-31, CL-32S, No. 61, No. 62
1454	105mm f4 Micro	f4-f32	23°20'	5/3	Auto	18.5" (0.47m)	52mm	2.7x4.1 in. (68.5x104mm)	17.6 oz. (500g)	Built-in	CL-35A, No. 63, CP-9
1468	200mm f4IF Micro	f4-f32	12°20'	9/6	Auto	27.9" (0.71m)	52mm	2.6x7.1 in. (66x180mm)	28.2 oz. (800g)	Built-in	CL-36
1024	28mm f3.5 PC	f3.5-f22	74°	9/8	Manual	11.8" (0.3m)	72mm	3.1x2.7 in. (78x69mm)	13.4 oz. (380g)	HN-9	CL-34A (Supplied), No. 61
1025	35mm f2.8 PC	f2.8-f32	62°	7/7	Manual	11.8" (0.3m)	52mm	2.4x2.6 in. (62x66mm)	11.3 oz. (320g)	HN-1	CL-34A (Supplied), No. 61

## Technical Specifications: Nikon Teleconverters

Specifications	TC-200	TC-300	TC-14
<b>Usable Lenses</b>	For most lenses up to 200mm focal length	For most lenses 300mm and longer	For most lenses 300mm and longer
<b>Lens Construction:</b>	7 elements in 5 groups	5 elements in 5 groups	5 elements in 5 groups
<b>Focal Length:</b>	Double that of lens in use	Double that of lens in use	1.4X that of lens in use
<b>Aperture Coupling Range:</b>	f2-f32	f2.8-f32	f2-f32
<b>Effective Aperture:</b>	f4-f64	f5.6-f64	f2.8-f45
<b>Diaphragm:</b>	Automatic	Automatic	Automatic
<b>Metering:</b>	Full aperture exposure measurement with AI cameras	Full aperture exposure measurement with AI cameras	Full aperture exposure measurement with AI cameras
<b>Reproduction Ratio:</b>	Double that of lens in use	Double that of lens in use	1.4X that of lens in use
<b>Depth of Field:</b>	1/2 that of lens in use	1/2 that of lens in use	1/1.4 that of lens in use
<b>Closest Focusing Distance:</b>	Same as that of lens in use	Same as that of lens in use	Same as that of lens in use
<b>Mount-to-Mount Length:</b>	1.7 in. (44mm)	4.2 in. (106.5mm)	0.96 in. (24.5mm)
<b>Dimensions: (Diam. x Length)</b>	2.5 x 2.1 in. (64.5 x 52.5mm)	2.5 x 4.5 in. (64.5 x 115mm)	2.5 x 1.3 in. (64.5 x 33.5mm)
<b>Weight:</b>	8.1 oz (230g)	9.9 oz. (280g)	5.8 oz. (165g)
<b>Product Number:</b>	1198	1199	1197

Notes: 1. These teleconverters can only be used in conjunction with lenses having AI features.  
2. When used with non-AI camera bodies, exposures should be measured by stop-down method.

# Nikon Filters



Like Nikon lenses, Nikon filters are made of the finest optical glass. Each filter is made optically flat to exacting quality standards, ground, polished and hard-coated for maximum reflection prevention. The glass is then spring-mounted in the filter frame to eliminate strain which may affect image quality. All front-mount lens filters have double-threaded frames for stacking a combination of filters, or attaching a Nikon lens hood. For best results, only Nikon filters should be used with Nikkor and Nikon Series E lenses as they are designed to complement each other.

## Nikon Filter Usage

Film	Type	Designation	Filter factor		Use
			Daylight	Tungsten light	
Black & white and color	Skylight	L1B	1	1	Reduces the bluish cast of scenes taken with color film in open shade, distant landscapes, etc., to produce a more natural effect. Also cuts haze to reveal more details. Leave on the lens as a lens protector. Nikon Integrated Coating (NIC) is applied to L1BC to reduce unfavorable light reflection.
		L1BC			
	Ultraviolet	L37	1	1	
		L37C			
L39					
Black & white	Yellow	Light Y44	1.5(1/2)	1	Absorbs moderately ultraviolet, violet and blue light for darkening skies and making clouds stand out with black-and-white film. Light yellow filters are suitable for outdoor portraits as they produce a more natural rendering of skin tones. As the filter factor increases, the color deepens and the effect becomes more pronounced.
		Medium Y48	1.7(3/4)	1.2(1/2)	
		Deep Y52	2 (1)	1.4(1/2)	
	Orange	056	3.5(1 1/6)	2 (1)	
	Red	R60	6 (3)	5(2 1/2)	
	Green	Light XO	2 (1)	1.7(3/4)	
Deep X1		5 (2 1/2)	3.5 (1 1/6)		
Black & white and color	Polarizing	Polar	2-4 (1-2)	2-4 (1-2)	Eliminates various degrees of reflected light from glass, water, tile and similar surfaces. Useful for photographing through glass windows or underwater. Not effective for metal surfaces because the polarization is imperceptible. Darkens skies when used with color film, accentuating clouds.
	Neutral density	ND2X	2 (1)	2 (1)	Subdues all colors uniformly. Useful for photographing extremely bright subjects like light sources or when the lens is used at a large aperture to minimize depth of field. Can be used with either black-and-white or color films as the filter itself is colorless.
		ND4X	4 (2)	4 (2)	
ND8X		8 (3)	8 (3)		
Color	Amber	Light A2	1.2 (1/2)		Used with daylight film to avoid the blue tinge which is likely to occur when a photograph is taken in the shade, in cloudy weather or indoors using light from a northern window in fair weather.
		Deep A12	2 (1)		
	Blue	Light B2	1.2 (1/2)		Used with daylight film to prevent the red-yellow cast which is characteristic of shots taken three hours or so before sunset or after sunrise.
		Medium B8	1.6 (3/4)		
		Deep B12	2.2 (1 1/6)		
					Used with daylight film and clear flashbulbs to eliminate excessive red-yellow cast.
					Used with daylight film to avoid the red-yellow cast caused by using a photo-flood lamp indoors.

## Available Nikon Filters

Type	Special Holder	Screw-in					Drop-in	Rear Mount Bayonet
		Attachment Size	39mm	52mm	62mm	72mm		
	Product No.	Product No.	Product No.	Product No.	Product No.	Product No.	Product No.	Product No.
Replacement Filter Case		2291		2292	2298	2299	2292	
L1BC	2238	2402	2371	2413				
L37								2366
L37C	2237	2399	2372	2415		2440		
L39					2287	2283	2450	
Y44		2295					2456	
Y48		2229	2373	2270	2284	2280	2451	
Y52	2251	2296					2457	
056	2253	2231	2374	2274	2285	2281	2452	2363
R60	2259	2249	2375	2273	2286	2282	2453	
X0		2297						
X1		2230						
Polar		2250	2376	2300				
ND2X	2318							
ND4X	2258	2243		2410				
ND8X	2319	2244						
ND400X		2409						
A2	2239	2266						2364
A12	2256	2264						
B2	2240	2235						2365
B8	2241	2267						
B12	2242	2268						
Soft Focus #1		2407						
Soft Focus #2		2408						
Filter Pouch (holds 6 filters)	2305	2307						
Gelatin Filter Holder (3x3")		2278		2279				
<b>Nikon lenses to be used</b>	500/8, *1000/11, ED300/2.8(1F), ED400/3.5(1F), ED600/5.6(1F), ED800/8(1F), ED1200/11(1F)	20/3.5, 24/2, 24/2.8, 28/2, 28/2.8, 28/3.5, 35/2.8PC, 35/1.4, 35/2, 35/2.8, 50/1.2, 50/1.4, 50/1.8, 55/2.8Micro, 85/2, 105/2.5, 105/4Micro, 200/4Micro, 135/2.8, 135/3.5, 200/4, 58/1.2Noct, AU-1 (Except polar), Nikonos: W35/2.5, 80/4, Series E50/L8, E28/2.8, E35/2.5, E100/2.8, E135/2.8, E75-150/3.5 Zoom, E-36-72/3.5Zoom	105/L8, 80-200/4/Zoom, Series E70-210/4, 35-70/3.5	28/3.5PC, 85/1.4, 135/2, 180/2.8, 300/4.5, ED400/5.6, 25-50/4 Zoom, 18/3.5, ED300/4.5(1F)	ED50-300/4.5 Zoom, ED180-600/8 Zoom	400/4.5, 600/5.6, ED360-1200/11 Zoom, ED300/2.8(1F), ED600/5.6(1F), ED400/3.5(1F), ED800/8(1F), ED1200/11(1F)	200-600/9.5 Zoom	13/5.6, 15/3.5, 16/2.8

Note: The attachment size of the built-in filter is 34.5mm. A 62-72mm step-up ring UR-1 is also available. Product No. 2377.

# Nikon Lens Hoods



Nikon lens hoods provide additional protection against image-degrading flare caused by extraneous light. Each hood has been individually computed to match the lens' angle of view to prevent vignetting. Snap-on lens hoods attach directly to the accessory thread of a Nikon lens or filter and may be reversed over the lens for convenient storage. Nikon's rubber lens hoods screw into the lens or mounted filter and fold back to permit camera or lens case to be closed even with the hood attached.

## Nikon Lens Hood Selector

	Screw-In		Snap-On		Rubber Screw-In		Slip-On	
	Model	Prod. No.	Model	Prod. No.	Model	Prod. No.	Model	Prod. No.
18mm f3.5 (repl.)							HK-9	563
20mm f3.5							HK-6	560
24mm f2							HK-2	551
24mm f2.8	HN-1	508						
28mm f2	HN-1	508						
28mm f2.8, 3.5	HN-2	509						
28mm f2.8E					HR-6	550		
28mm f3.5 PC	HN-9	523						
35mm f1.4, 2, 2.8	HN-3	510						
35mm f2.8 PC	HN-1	508						
35mm f2.5E or 50mm f1.8E					HR-4	548		
50mm f1.2			HS-12	547				
50mm f1.4			HS-9	543	HR-1	537		
50mm f1.8			HS-11	546	HR-1	537		
55mm f1.2			HS-7	541	HR-2	538		
55mm f2.8 Micro	HN-3	510						
85mm f1.4 (repl.)	HN-20	562						
85mm f2	HN-7	514	HS-10	545				
105mm f2.5 (repl.)			HS-8	522				
500mm f8 (repl.)	87mm	530						
1000mm f11 (repl.)							108mm	532
25-50mm f4							HK-7	561
35-70mm f3.5	HN-22	566						
36-72mm f3.5E							HK-8	564
50-300mm f4.5							HK-5	554
70-210mm f4E	HN-24	567						
75-150mm f3.5E	HN-21	507						
80-200mm f4	HN-23	565						
200-600mm f9.5	HN-10	616						
Polarizer 52mm	HN-12	518						
Polarizer 72mm	HN-13	539						

Specifications subject to change without notice.



## Nikon Lens Cases

### Hard Leatherette Cases

Durable, hard lens cases provide maximum protection for storage and transport. Available in a variety of sizes, all provide velveteen lining and lugs to attach shoulder strap.

### Soft Pouch Cases

Flexible pouches fit most Nikon lenses. Collapsible when empty for easy storage in pocket or compartment case. Provides excellent protection at moderate cost.

### Plastic Cases

Moisture-proof and dust-proof plastic storage "bottles" available in two sizes. Bottom portion has bayonet mount to attach lens directly.

### Camera/Lens Cases

Special CE-type case accommodates camera and long lens together. Supplied with shoulder strap.

### Wooden Cases

Holds 400mm, 600mm, 800mm or 1200mm Nikon lens with Focusing Mount and camera body attached. Felt-lined for maximum protection.

### Nikon Lens Caps

Replacement front and rear lens caps for Nikon lenses. See price list for specific sizes. Note: All Nikon lenses are supplied with front and rear lens caps.

# Nikon Lens Accessories

## Nikon Lens Cases

Material	Cases																																					
	Plastic		Leatherette																Pouch																			
Lenses	CP-8	CP-9	CL-11	CL-13	CL-14	CL-15	CL-15A	CL-17	CL-20A	CL-23	CL-27A	CL-29	CL-30S	CL-31S	CL-32S	CL-33S	CL-34A	CL-35A	CL-36	CL-37	CL-61	CL-62A	CL-63	CL-64	No. 57	No. 61	No. 62	No. 63	CE-2	CE-3	CT-601	CT-1206	CT-1203	CZ-1860	CZ-3612			
Fisheye 8/2.8			x																																			
16/2.8	x												x															x										
13/5.6					x																																	
Wide 15/3.5								x																														
18/3.5																						x																
20/3.5	x												x															x										
24 2	x												x	x														x	x									
24/2.8	x												x															x										
28/2	x													x																								
28/2.8	x												x																									
28/2.8E	x												x																									
28/3.5	x												x																									
35/1.4	x													x																								
35/2	x													x																								
35/2.5E	x												x																									
35/2.8	x												x																									
Normal 50/1.4	x																x																					
50/1.8	x												x																									
50/1.8E	x												x																									
50/1.2	x																x																					
Telephoto 85/1.4																		x																				
85/2	x																																					
105/1.8						x																																
105/2.5		x																																				
135/2						x																																
135/2.8		x																																				
135/2.8E		x																																				
135/3.5		x																																				
180/2.8ED																																						
IF-ED 200/2																																						
200/4		x				x																																
IF-ED 300/2.8																																						
300/4.5																																						
IF-ED 300/4.5																																						
IF-ED 400/3.5																																						
IF-ED 400/5.6																																						
IF-ED 600/4																																						
IF-ED 600/5.6																																						
IF-ED 800/8																																						
IF-ED 1200/11																																						
PC 28/3.5																																						
PC 35/2.8																																						
Micro 55/2.8	x	x																																				
Micro 105/4		x																																				
Micro IF 200/4																																						
Noct 58/1.2	x																																					
Zoom 25-50/4																																						
35-70/3.5		x																																				
36-72/3.5E		x																																				
ED 50-300/4.5																																						
70-210/4E																																						
75-150/3.5E		x																																				
80-200/4																																						
ED 180-600/8																																						
200-600/9.5																																						
ED 360-1200																																						
Reflex 500/8																																						
Reflex 1000/11																																						
TC-14	x																																					
TC-200	x																																					
TC-300		x																																				
Product Number	4510	4511	436	448		452	4452	485	431	451	4458	475	4501	4502	4503	4504	4474	4479	4480	4470	4472	4473	4475			4301	4302	4303	455	466				441	443			

Specifications subject to change without notice.

# Nikon AI Modification Service

## Nikon AI Modification Service

An essential element of the Nikon system of photography is its inherent capacity for growth, permitting the Nikon system photographer to continually enjoy state-of-the-art optics and advances, in a way that seemingly not only challenges but actually defies obsolescence. This historic Nikon commitment to excellence without obsolescence is again demonstrated in the unique AI Modification service, through which owners of millions of present Auto-Nikkor lenses can have their lenses modified for AI operation at nominal cost.

## What the AI Modification Does

In the AI Modification, Auto-Nikkor lenses with meter-coupling shoe (prong) are provided with facilities for Automatic Maximum Aperture Indexing (AI), Aperture Direct Readout (ADR), and full-aperture metering with the newest high-performance Nikon-system cameras. This modification in no way affects their use with previous Nikon/Nikkormat-system cameras: aperture indexing, metering, automatic-diaphragm action, focusing range, and viewfinder information functions operate exactly as they did prior to the modification. You can easily identify any AI-Nikkor lens (including modified lenses) by the secondary aperture scale, which allows for the Aperture Direct Readout facility of the new cameras.

## What Lenses Can Be Modified

The overwhelming majority of Auto-Nikkor lenses with meter-coupling shoe manufactured from 1967 on can be modified for AI compatibility. However, due to differences in construction, some Auto-Nikkor lenses (predominantly those made prior to 1967) cannot be modified. Lenses suitable for modification are identified by serial number on the chart on the back of this page.

## What It Costs

There are three categories of modification (as indicated on the chart). The majority of lenses will cost \$18.50; some will cost \$33.50, and the balance \$43.00. These prices include the cost of return postage and handling. These charges are based on our basic costs for labor, parts, and handling and have been calculated to keep modification expenses as low as possible.

## How to Arrange for AI Modification

**This service is designed for direct handling between Nikon Inc. and owners of Auto-Nikkor lenses. The procedure outlined below is addressed to such owners.**

A special Consumer Information Sheet concerning requests for AI Modification is available from Nikon Inc. in Garden City, N.Y. by writing to the attention of the AI Modification Service Dept. Dealers interested in AI Modification of lenses in their inventories may contact Nikon Inc.

1. Check the serial numbers of your present Auto-Nikkor lenses against the AI Modification Chart. If they are listed, they probably can be modified to AI.
2. Make a list of the Auto-Nikkor lens or lenses that you wish to modify indicating (a) focal length, (b) maximum f-stop, (c) serial number of each lens. Next to each lens, indicate the Modification Category number (1, 2 or 3), which you will find on the AI Modification Chart.

3. Send your list of lens(es) along with your name and address to: AI Modification Service, Nikon Incorporated, P.O. Box 390, Mineola, New York 11501.
4. Upon receipt and review of your list of lenses, Nikon will mail you a Lens Report indicating:
  - a) Which of your lenses can be modified to AI
  - b) The cost of modification for each lens
  - c) The proper Service Center to send your lenses to
5. When you receive your Lens Report from Nikon, select only those lenses which the report indicates can be modified to AI. Pack them carefully in a sturdy box, using front and rear lens caps and with the lenses inside individual plastic bags. Surround them with plenty of foam rubber, newspaper or other shock-absorbing material. For added security, we suggest placing the lenses in one box, then packing that box within an outer box also containing foam rubber or other padding. Seal the outer package carefully.
6. Check off the lenses you are sending for modification on the Lens Report you received from Nikon, along with all the other information requested. Place the Lens Report along with a check or money order for the full amount due in an envelope and attach the envelope to your package of lenses. Address and mail the package, prepaid and insured, to the Nikon Service Center indicated on your Lens Report. Be sure your return address is on the package, too!
7. Only Nikkor lenses can be modified by Nikon Inc. All other brands must be referred back to the original manufacturer or distributor.

## More About AI Modification

- Current non-coupled Nikkor lenses—Reflex Nikkors, Ultra-Tele Nikkors, PC-Nikkors and others—work with the new cameras exactly as they did with earlier Nikon and Nikkormat models and do not require modification. (See camera instruction manual for complete details.)
- Your present Auto-Nikkor lenses can be used with the new cameras (Nikon F3, FE and FM; not FM2, FG or EM) even without modification, using stop down metering. (So, you may want to modify only those which you use most often.)
- Meter systems of earlier Nikon system cameras cannot be modified to the AI/ADR system. However, AI-Nikkors, including modified lenses, can be used with these cameras just like earlier Auto-Nikkors.
- Nikon Inc. will perform AI lens modifications as described herein for the next few years. You will be notified before the modification service is no longer available.

# Nikon AI Modification Service

## Nikkor Lenses That Can Be Modified to AI and ADR

Cost of Lens Modification Per Category				
Lens	Serial Numbers	\$18.50 Category 1	\$33.50 Category 2	\$43.00 Category 3
6mm f2.8	628001-and higher			X
8mm f2.8	230011-and higher			X
16mm f3.5	272281-and higher			X
13mm f5.6	175021-and higher			X
15mm f5.6	321001-and higher			X
18mm f4	173111-and higher		X	
20mm f3.5	421241-and higher	X		
20mm f4	103001-and higher	X		
24mm f2.8	242821-and higher	X		
28mm f2	280001-and higher	X		
28mm f2.8	382011-and higher	X		
28mm f3.5	195531-301010 625611-and higher	X		
35mm f1.4	350001-and higher		X	
35mm f2	717011-and higher	X		
35mm f2.8	255311-920110	X		
50mm f1.4	532011-and higher	X		
50mm f2	741111-and higher	X		
55mm f1.2	184711-970110	X		
85mm f1.8	219901-and higher	X		
105mm f2.5	234011-and higher	X		
135mm f2	175011-and higher	X		
135mm f2.8	189311-and higher	X		
135mm f3.5	111111-720100 831211-904080	X		
180mm f2.8	312011-and higher		X	
200mm f4	304411-and higher	X		
300mm f4.5	326511-and higher	X		
300mm f4.5 ED	173101-and higher		X	
400mm f5.6	256031-260000		X	
400mm f5.6 ED	260001-and higher		X	
45mm f2.8 GN	710101-and higher		X	
+55mm f3.5 Micro	238011-and higher	X		
+105mm f4 Micro	174011-and higher		X	
28-45mm Zoom f4.5	174011-and higher		X	
43-86mm Zoom f3.5	438611-and higher		X	
50-300mm Zoom f4.5	740101-and higher		X	
80-200mm Zoom f4.5	101911-and higher		X	
85-250mm Zoom f4	184711-and higher		X	

+New AI extension rings (PK-13 for 55mm Micro Nikkor lens. PN-11 for 105mm Micro Nikkor lens), available as accessories, must be used for full aperture meter operation in 1:2-1:1 range. Original rings may be used with stop down metering. *Modification of previous PK and PN-series extension rings is not available.*



# Technical Specifications

## Technical Specifications: EL-Nikkor Enlarging Lenses

	50mm f2.8N	50mm f4	63mm f2.8N	75mm f4N	80mm f5.6N	105mm f5.6N	135mm f5.6	150mm f5.6	180mm f5.6	210mm f5.6	240mm f5.6	300mm f5.6	360mm f5.6
<b>Focal Length:</b>	52.1mm	51.6mm	62.9mm	75mm	80.1mm	105.5mm	135mm	150mm	180mm	210mm	240mm	300mm	360mm
<b>Aperture Range:</b>	f2.8-16	f4-16	f2.8-16	f4-45	f5.6-32	f5.6-32	f5.6-45	f5.6-45	f5.6-45	f5.6-45	f5.6-45	f5.6-45	f5.6-45
<b>Construction: (elements/ groups)</b>	6/4	4/3	6/4	4/3	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4
<b>Standard Magnification:</b>	8X	8X	8X	5X	5X	5X	5X	4X	4X	4X	3X	2X	2X
<b>Usable Magnification Range:</b>	2X-20X	2X-20X	2X-20X	2X-10X	2X-15X	2X-10X	2X-10X	2X-8X	2X-8X	2X-8X	1X-6X	1X-4X	1X-4X
<b>Covering Power:</b>	46°	46°	46°	52°	56°	51°	54°	54°	54°	54°	54°	52°	52°
<b>Correction Wavelength Range:</b>	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu	380- 700mu
<b>Original Size:</b>	43.2mmφ	43.2mmφ	55.2mmφ	80mmφ	95mmφ	120mmφ	160mmφ	190mmφ	230mmφ	270mmφ	330mmφ	440mmφ	500mmφ
<b>Format Size:</b>	24 x 36mm	24 x 36mm	32 x 45mm	60 x 60mm (2-1/4sq)	60 x 70mm	60 x 90mm	90 x 120mm (4x5")	100 x 130mm (4x5")	130 x 180mm (5x7")	130 x 210mm (5x7")	180 x 240mm (8x10")	270 x 330mm (10x12")	300 x 400mm (11x14")
<b>Front Mount Size: (diam. x pitch)</b>	—	—	—	—	—	—	46mmφ x 0.5mm	53mmφ x .75mm	62mmφ x 1mm	72mmφ x 1mm	82mmφ x 1mm	100mmφ x 1mm	130mmφ x 1.5mm
<b>Attachment Size: (diam. x pitch)</b>	40.5mmφ x 0.5mm	34.5mmφ x 0.5mm	40.5mmφ x 0.5mm	40.5mmφ x 0.5mm	40.5mmφ x 0.5mm	40.5mmφ x 0.5mm	43mmφ x 0.5mm	47mmφ x 0.5mm	58mmφ x 0.75mm	68mmφ x 0.75mm	77mmφ x 0.75mm	95mmφ x 1mm	120mmφ x 1mm
<b>Rear Mount Size: (diam. x pitch)</b>	39mmφ x 1/26"	39mmφ x 1/26"	39mmφ x 1/26"	39mmφ x 1/26"	39mmφ x 1/26"	39mmφ x 1/26"	39mmφ x 1/26" 45mmφ x 1/26"	53mmφ x 0.75mm	62mmφ x 1mm	72mmφ x 1mm	82mmφ x 1mm	100mmφ x 1mm	130mmφ x 1.5mm
<b>Flange Diameter:</b>	—	—	—	—	—	—	—	74mm	88mm	98mm	108mm	131mm	165mm
<b>Dimensions: (length x diam.)</b>	1.5 x 2 in. (39 x 51mm)	1.1 x 1.8 in. (28 x 44.5mm)	1.7 x 2 in. (42.5 x 51mm)	1.3 x 1.8 in. (32 x 44.5mm)	1.5 x 2 in. (38.5 x 51mm)	1.6 x 2 in. (40 x 51mm)	1.9 x 2.2 in. (47.2 x 57mm)	2.2 x 2.4 in. (55.5 x 62mm)	2.5 x 2.9 in. (62.6 x 76mm)	3 x 3.2 in. (77 x 82mm)	3.2 x 3.8 in. (81.7 x 96mm)	3.8 x 4.6 in. (97 x 117mm)	4.7 x 5.6 in. (119 x 143mm)
<b>Weight:</b>	3.7 oz. (105g)	3.5 oz. (100g)	4.2 oz. (120g)	2.8 oz. (80g)	3.5 oz. (100g)	3.9 oz. (110g)	9.2 oz. (260g)	10.6 oz. (300g)	15.2 oz. (430g)	21.2 oz. (600g)	32.1 oz. (910g)	54.7 oz. (1550g)	95.2 oz. (2700g)
<b>Product Number:</b>	210	214	211	224	212	213	219	220	95101	222	95102	95103	95104

Specifications subject to change without notice.



## Nikkor-W Series Large Format Lenses

**100mm f5.6 Nikkor-W**  
**135mm f5.6 Nikkor-W**  
**150mm f5.6 Nikkor-W**  
**180mm f5.6 Nikkor-W**  
**210mm f5.6 Nikkor-W**  
**240mm f5.6 Nikkor-W**  
**300mm f5.6 Nikkor-W**

The W-series Nikkor large format lenses are recommended for a wide variety of photographic applications including landscapes, portraits, architecture and table-top photography. All seven focal lengths have f5.6 maximum apertures for bright viewing and focusing on the ground glass. And, stopped down, they provide a covering power of at least 70°. Constructed of six elements in four groups, lenses in this series

exhibit a high degree of freedom from distortion, curvature of field and chromatic aberration. Contrast and color reproduction are enhanced through the use of Nikon Integrated Coating. Supplied with Copal® leaf shutters, designed exclusively for Nikon.

Copal is the registered trademark of Copal Co. Ltd., Tokyo, Japan.

See page 32 for complete product specifications.

# Nikon Large Format Lenses



## Nikkor-SW Series Large Format Lenses

- 65mm f4 Nikkor-SW
- 75mm f4.5 Nikkor-SW
- 90mm f4.5 Nikkor-SW
- 90mm f8 Nikkor-SW
- 120mm f8 Nikkor-SW
- 150mm f8 Nikkor-SW

The SW-series Nikkor large format lenses are wide angles for view camera formats from 4" x 5" up to 8" x 10". They are characterized by their wide covering power and wide image circle. Maximum apertures of f4 and f4.5 mean a brighter ground glass image for easier, more accurate focusing. And stopped down, their maximum covering power extends to 106° for the 75mm f4.5 and 150mm f8 and to 105° for all other Nikkor SW-series large format lenses.

Most SW-series lenses incorporate Copal® No. 0 shutters with speeds from 1-1/500 sec., plus "T" and "B" settings. The Copal® No. 1 shutter in the 150mm Nikkor provides speeds to 1/400 sec., plus "T" and "B". Like every Nikon lens, aberrations are strictly controlled for high resolution and image contrast with negligible flare.

Copal is the registered trademark of Copal Co. Ltd., Tokyo, Japan.

See pages 32 and 33 for complete product specifications.



## Nikkor-M & Nikkor-T Series Large Format Lenses

### Nikkor-M Series Large Format Lenses

**105mm f3.5 Nikkor-M**  
**300mm f9 Nikkor-M**  
**450mm f9 Nikkor-M**

The 300mm and 450mm M-series Nikkor large format lenses employ the same optical system used in the Apo-Nikkor, a lens which meets the stringent standards of reproduction and photolithography applications. Chromatic aberrations, which can cause color fringing on the image, are corrected for the entire visible light spectrum so faithful reproductions of subtle variations in color are assured. All M-series lenses have standard covering power between 52° and 57° when stopped down to f22.

### Nikkor-T Series Large Format Lenses

**270mm f6.3 Nikkor-T**  
**360mm f8 Nikkor-T**

Nikon's Nikkor-T series lenses are large format telephotos that incorporate Extra-Low Dispersion glass. The ED glass effectively controls lateral chromatic aberrations, preventing unwanted color fringing. Additionally, their design permits minimum bellows draw, approximately half their focal length, for easier view camera operation.

---

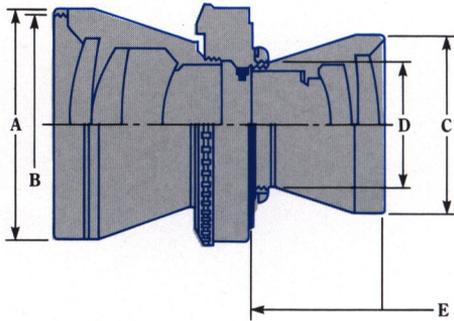
See page 33 for complete product specifications.

# Technical Specifications

## Technical Specifications: Nikkor-W Lenses

<b>Focal Length:</b> <b>Maximum Aperture Ratio:</b> <b>Minimum Aperture:</b> <b>Lens Construction:</b> <b>Covering Power (f5.6):</b> <b>Covering Power (f22):</b> <b>Image Circle (f5.6):</b> <b>Image Circle (f22):</b> <b>Shutter:</b> <b>Shutter Speed:</b> <b>Sync Socket:</b> <b>Front Mount Size [A]:</b> <b>Attachment Size [B]:</b> <b>Rear Mount Size [C]:</b> <b>Flange Attachment Size [D]:</b> <b>Flange Focal Distance [E]:</b> <b>Overall Length:</b> <b>Weight:</b> <b>Product Number:</b>	<b>100mm f5.6</b> 100mm (4 in.) 1:5.6 f45 6 elements in 4 groups 60° 74° 117mmφ 153mmφ (4" x 5") No. 0 (Copal* *) 1-1/500 sec., T, B X-contact 42mmφ 40:5mmφx0.5mm(P) 31.5mmφ 32.5mmφx0.5mm(P) 99.2mm 37.5mm (1.5 in.) 170g (6 oz.) 1310	<b>135mm f5.6</b> 135mm (5 in.) 1:5.6 f64 6 elements in 4 groups 60° 73° 156mmφ 200mmφ (120x165mm) No. 0 (Copal* *) 1-1/500 sec., T, B X-contact 54mmφ 52mmφx0.75mm(P) 42mmφ 32.5mmφx0.5mm(P) 133.8mm 46mm (1.8 in.) 200g (7.1 oz.) 1312	<b>150mm f5.6</b> 150mm (6 in.) 1:5.6 f64 6 elements in 4 groups 60° 70° 174mmφ 210mmφ (5" x 7") No. 0 (Copal* *) 1-1/500 sec., T, B X-contact 54mmφ 52mmφx0.75mm(P) 42mmφ 32.5mmφx0.5mm(P) 149.2mm 50mm (2 in.) 230g (8.1 oz.) 1314	<b>180mm f5.6</b> 180mm (7 in.) 1:5.6 f64 6 elements in 4 groups 60° 70° 208mmφ 253mmφ (5" x 7") No. 1 (Copal* *) 1-1/400 sec., T, B X-contact 70mmφ 67mmφx0.75mm(P) 54mmφ 39mmφx0.75mm(P) 178.8mm 60.5mm (2.4 in.) 380g (13.4 oz.) 1316
<b>Focal Length:</b> <b>Maximum Aperture Ratio:</b> <b>Minimum Aperture:</b> <b>Lens Construction:</b> <b>Covering Power (f5.6):</b> <b>Covering Power (f22):</b> <b>Image Circle (f5.6):</b> <b>Image Circle (f22):</b> <b>Shutter:</b> <b>Shutter Speed:</b> <b>Sync Socket:</b> <b>Front Mount Size [A]:</b> <b>Attachment Size [B]:</b> <b>Rear Mount Size [C]:</b> <b>Flange Attachment Size [D]:</b> <b>Flange Focal Distance [E]:</b> <b>Overall Length:</b> <b>Weight:</b> <b>Product Number:</b>	<b>210mm f5.6</b> 210mm (8 in.) 1:5.6 f64 6 elements in 4 groups 60° 70° 243mmφ 295mmφ (6½" x 8½") No. 1 (Copal* *) 1-1/400 sec., T, B X-contact 70mmφ 67mmφx0.75mm(P) 60mmφ 39mmφx0.75mm(P) 209.1mm 69mm (2.7 in.) 460g (16.2 oz.) 1318	<b>240mm f5.6</b> 240mm (9½ in.) 1:5.6 f64 6 elements in 4 groups 60° 70° 278mmφ 336mmφ (8" x 10") No. 3 (Copal* *) 1-1/125 sec., T, B X-contact 85mmφ 82mmφx0.75mm(P) 60mmφ 62mmφx0.75mm(P) 227.3mm 77mm (3 in.) 820g (28.9 oz.) 1319	<b>300mm f5.6</b> 300mm (12 in.) 1:5.6 f64 6 elements in 4 groups 60° 70° 346mmφ 420mmφ (10" x 12") No. 3 (Copal* *) 1-1/125 sec., T, B X-contact 100mmφ 95mmφx1mm(P) 80mmφ 62mmφx0.75mm(P) 287.1mm 94.5mm (3.7 in.) 1250g (44.1 oz.) 1320	

## Technical Specifications: Nikkor-SW Lenses

<b>Focal Length:</b> <b>Maximum Aperture Ratio:</b> <b>Minimum Aperture:</b> <b>Lens Construction:</b> <b>Covering Power:</b> <b>Covering Power:</b> <b>Image Circle:</b> <b>Image Circle:</b>  <b>Shutter:</b> <b>Shutter Speed:</b> <b>Sync Socket:</b> <b>Front Mount Size [A]:</b> <b>Attachment Size [B]:</b> <b>Rear Mount Size [C]:</b> <b>Flange Attachment Size [D]:</b> <b>Flange Focal Distance [E]:</b> <b>Overall Length:</b> <b>Weight:</b> <b>Product Number:</b>	<b>65mm f4</b> 65mm (2½ in.) 1:4 f45 7 elements in 4 groups 80° (f4) 105° (f16) 110mmφ (f4) 170mmφ (4" x 5") (f16)  No. 0 (Copal* *) 1-1/500 sec., T, B X-contact 70mmφ 67mmφx0.75mm(P) 54mmφ 32.5mmφx0.5mm(P) 70.8mm 67mm (2.6 in.) 370g (13.1 oz.) 1341	<b>75mm f4.5</b> 75mm (3 in.) 1:4.5 f45 7 elements in 4 groups 80° (f4.5) 106° (f16) 126mmφ (f4.5) 220mmφ (120mm x 165mm) (f16) No. 0 (Copal* *) 1-1/500 sec., T, B X-contact 70mmφ 67mmφx0.75mm(P) 60mmφ 32.5mmφx0.5mm(P) 81.3mm 73.5mm (2.9 in.) 420g (14.8 oz.) 1343	
---	---	---	---

Specifications subject to change without notice.

## Technical Specifications: Nikkor-SW Lenses

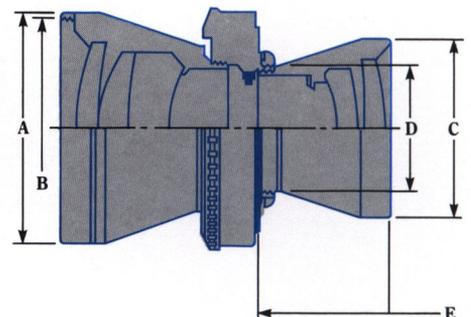
	<b>90mm f4.5</b>	<b>90mm f8</b>	<b>120mm f8</b>	<b>150mm f8</b>
<b>Focal Length:</b>	90mm (3½ in.)	90mm (3½ in.)	120mm (5 in.)	150mm (6 in.)
<b>Maximum Aperture Ratio:</b>	1:4.5	1:8	1:8	1:8
<b>Minimum Aperture:</b>	f64	f64	f64	f64
<b>Lens Construction:</b>	7 elements in 4 groups	8 elements in 4 groups	8 elements in 4 groups	8 elements in 4 groups
<b>Covering Power:</b>	80° (f4.5)	80° (f8)	80° (f8)	80° (f8)
<b>Covering Power:</b>	105° (f16)	105° (f22)	105° (f22)	106° (f22)
<b>Image Circle:</b>	154mmφ (f4.5)	154mmφ (f8)	200mmφ (f8)	253mmφ (f8)
<b>Image Circle:</b>	235mmφ (5" x 7") (f16)	253mmφ (5" x 7") (f22)	312mmφ (8" x 10") (f22)	400mmφ (10" x 12") (f22)
<b>Shutter:</b>	No. 0 (Copal*)	No. 0 (Copal*)	No. 0 (Copal*)	No. 1 (Copal**)
<b>Shutter Speed:</b>	1-1/500 sec., T, B	1-1/500 sec., T, B	1-1/500 sec., T, B	1-1/400 sec., T, B
<b>Sync Socket:</b>	X-contact	X-contact	X-contact	X-contact
<b>Front Mount Size [A]:</b>	85mmφ	70mmφ	80mmφ	100mmφ
<b>Attachment Size [B]:</b>	82mmφx0.75mm(P)	67mmφx0.75mm(P)	77mmφx0.75mm(P)	95mmφx1mm(P)
<b>Rear Mount Size [C]:</b>	70mmφ	60mmφ	80mmφ	100mmφ
<b>Flange Attachment Size [D]:</b>	32.5mmφx0.5mm(P)	32.5mmφx0.5mm(P)	32.5mmφx0.5mm(P)	39mmφx0.75mm(P)
<b>Flange Focal Distance [E]:</b>	97.4mm	97.0mm	130.7mm	165.9mm
<b>Overall Length:</b>	86.7mm (3.4 in.)	71mm (2.8 in.)	92.5mm (3.6 in.)	115.5mm (4.5 in.)
<b>Weight:</b>	600g (21.2 oz.)	360g (12.7 oz.)	610g (21.5 oz.)	1050g (37 oz.)
<b>Product Number:</b>	1345	1344	1346	1351

## Technical Specifications: Nikkor-M Lenses

	<b>105mm f3.5</b>	<b>300mm f9</b>	<b>450mm f9</b>
<b>Focal Length:</b>	105mm (4 in.)	300mm (12 in.)	450mm (18 in.)
<b>Maximum Aperture Ratio:</b>	1:3.5	1:9	1:9
<b>Minimum Aperture:</b>	f45	f128	f128
<b>Lens Construction:</b>	4 elements in 3 groups	4 elements in 3 groups	4 elements in 3 groups
<b>Covering Power:</b>	51° (f3.5)	55° (f9)	50° (f9)
<b>Covering Power:</b>	55° (f22)	57° (f22)	52° (f22)
<b>Image Circle:</b>	100mmφ (f3.5)	312mmφ (f9)	420mmφ (f9)
<b>Image Circle:</b>	110mmφ (60mmx90mm) (f22)	325mmφ (8" x 10") (f22)	440mmφ (10" x 12") (f22)
<b>Shutter:</b>	No. 0 (Copal*)	No. 1 (Copal*)	No. 3 (Copal*)
<b>Shutter Speed:</b>	1-1/500 sec., T, B	1-1/400 sec., T, B	1-1/125 sec., T, B
<b>Sync Socket:</b>	X-contact	X-contact	X-contact
<b>Front Mount Size [A]:</b>	42mmφ	54mmφ	70mmφ
<b>Attachment Size [B]:</b>	40.5mmφx0.5mm(P)	52mmφx0.75mm(P)	67mmφx0.75mm(P)
<b>Rear Mount Size [C]:</b>	31.5mmφ	42mmφ	60mmφ
<b>Flange Attachment Size [D]:</b>	32.5mmφx0.5mm(P)	39mmφx0.75mm(P)	62mmφx0.75mm(P)
<b>Flange Focal Distance [E]:</b>	96.5mm	293.8mm	435.8mm
<b>Overall Length:</b>	35.5mm (1.4 in.)	43mm (1.7 in.)	55mm (2.2 in.)
<b>Weight:</b>	170g (6 oz.)	290g (10.2 oz.)	640g (22.6 oz.)
<b>Product Number:</b>	1324	1321	1323

## Technical Specifications: Nikkor-T Lenses

	<b>270mm f6.3</b>	<b>360mm f8</b>
<b>Focal Length:</b>	270mm	360mm
<b>Maximum Aperture Ratio:</b>	1:6.3	1:8
<b>Minimum Aperture:</b>	f64	f64
<b>Lens Construction:</b>	5 elements in 4 groups	5 elements in 4 groups
<b>Covering Power:</b>	24° (f6.3)	24° (f8)
<b>Covering Power:</b>	33° (f22)	33° (f22)
<b>Image Circle:</b>	114mmφ (f6.3)	154mmφ (f8)
<b>Image Circle:</b>	4 x 5", 160mmφ (f22)	5 x 7", 210mmφ (f22)
<b>Shutter:</b>	No. 1 (Copal*)	No. 1 (Copal*)
<b>Shutter Speed:</b>	T, B, 1-1/400 sec.	T, B, 1-1/400 sec.
<b>Sync Socket:</b>	X-contact	X-contact
<b>Front Mount Size [A]:</b>	70mmφ	70mmφ
<b>Attachment Size [B]:</b>	67mmφx0.75mm(P)	67mmφx0.75mm(P)
<b>Rear Mount Size [C]:</b>	54mmφ	60mmφ
<b>Flange Attachment Size [D]:</b>	39mmφx0.75mm(P)	39mmφx0.75mm(P)
<b>Flange Focal Distance [E]:</b>	187.6mm	261mm
<b>Overall Length (F):</b>	96mm (3.8 in.)	124mm (4.9 in.)
<b>Weight:</b>	810.8g (28.6 oz.)	799.5g (28.2 oz.)
<b>Product Number:</b>	1352	1353



Specifications subject to change without notice.



Motor Drive Accessories  
Nikon Close-Up System  
Viewfinder Accessories  
Camera & Compartment Cases  
General Accessories

# Nikon Motor Drive Accessories

## Nikon Intervalometer MT-1 & Connecting Cord MC-5



The Nikon Intervalometer MT-1 enables timing control of exposures and exposure intervals for applications such as time-lapse photography. With its two timing control dials, the MT-1 provides up to 20 different settings for shooting and/or rest periods of up to eight minutes. Also, mode (one-time or multiple-sequence operation) and starting (instant or delayed) functions are available. Remote operation is possible via the Radio Control Unit MW-1. The MT-1's temperature compensation and voltage stabilizer circuits can adapt the unit to the shooting environment with no change in performance; it can also be used in the field with penlight batteries. The intervalometer has a battery check, LED timing signal, and a full complement of cords to connect the unit to the camera, external power source, or other remote control equipment.

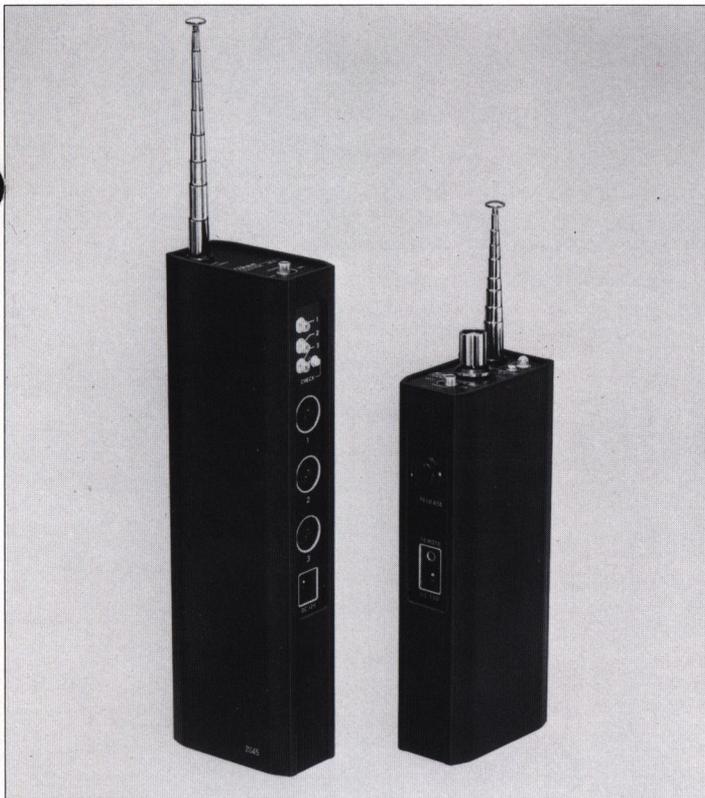
**Dimensions:** 2.4 x 5.9 x 5.1 in. (60 x 150 x 130mm)

**Weight:** 2.1 lb. (970g)

**Power Source:** Four 1.5V AA-type batteries (5.7V DC ± 1V)

**Product Number:** 71; 77/Repl. Cord MC-5

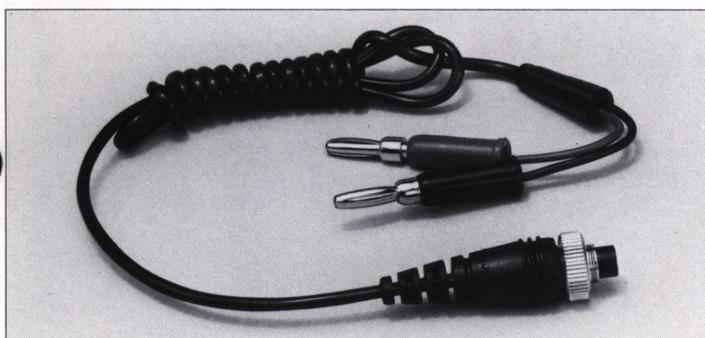
## Wireless Remote Control Outfit MW-1



This radio remote control unit consists of a transmitter (R) and receiver (L). The receiver is connected to a motor drive via the Connecting Cord MC-5. The transmitter can trigger the camera from up to 765.5 yards, and will resist interference from CB radio transmissions. Three separate channels permit using up to three motor-driven cameras together or independently.

	MW-1 Transmitter	MW-1 Receiver
<b>Dimensions:</b>	1.6 x 2.9 x 7.5 in. (41 x 76 x 190mm)	1.6 x 2.9 x 9.8 in. (41 x 76 x 250mm)
<b>Weight:</b>	20.1 oz. (570g)	25.7 oz. (730g)
<b>Power Source:</b>	Eight 1.5V AA-type batteries	Eight 1.5V AA-type batteries
<b>Product Number:</b> 59		

## Nikon Remote Cord MC-4



With plus and minus banana-type plugs, the MC-4 Remote Cord can be used to fire up to three motor-driven cameras simultaneously. The MC-4 cord is also used to connect cameras to other types of remote firing control units. Cord is 3.3 feet (1m) long.

**Product Number:** 29

# Nikon Motor Drive Accessories



## Modulite Remote Control Outfit ML-1 & Connecting Cord MC-8

The Modulite Remote Control Outfit ML-1 is a cordless unit that triggers a motor-driven camera by a modulated burst of light at distances up to 196.8 feet. The receiver portion of the outfit is attached to the camera's hot shoe and connected to the motor drive by the MC-8 cord. The transmitter emits light over 30° x 40° field while the receiver picks up the signal within a 100° x 110° angle for reliable off-axis or bounce signal reception. It cannot be triggered by other light sources. Dual channel selectors permit simultaneous or individual control of two cameras situated in close proximity with one transmitter.

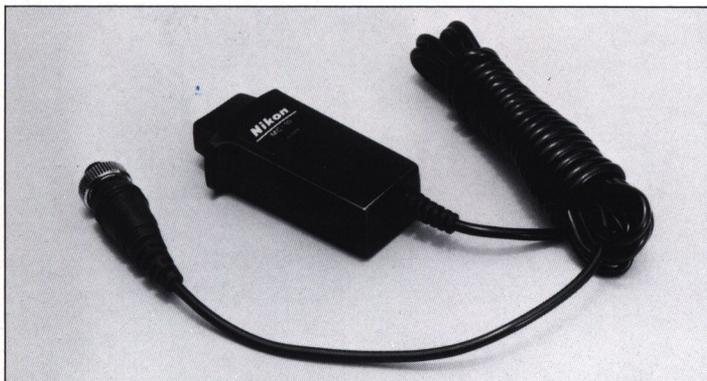
	ML-1 Transmitter	ML-1 Receiver
<b>Dimensions:</b>	1.5 x 1.5 x 5.1 in. (40 x 40 x 130mm)	1.9 x 2.4 x 3.1 in. (50 x 62 x 80mm)
<b>Weight:</b>	4.6 oz. (130g)	6 oz. (170g)
<b>Power Source:</b>	Four 1.5V AA-type batteries for approximately 750 signals	One 9V battery for approximately 10 operating hours
<b>Product Number:</b>	72; replacement transmitter: 73; replacement receiver: 74; replacement Connecting Cord MC-8: 75	



## Nikon AC/DC Converter MA-4 & External Power Cord MC-11

This power source is highly recommended for photographers who primarily use their camera and motor drive in the studio. The MA-4 converter takes standard AC current (100, 120 or 220 volts) and, with its built-in voltage stabilizer, converts it to 15 volts DC current. The Converter is connected to the MD-4 motor drive via the 10-foot External Power Cord MC-11, for a limitless number of exposures. (Use Connecting Cord MC-2 for Nikon Motor Drive MD-2 and MD-3. **Product Number: 25**)

**Product Numbers: 42; 132/Connecting Cord MC-11**



## Nikon Remote Cord MC-12

The 10-foot (3m) MC-12 remote cord incorporates an integral handgrip and shutter release button to trigger the MD-4 or MD-12 motor drives. Release activates F3's meter and auto meter turn off circuit when partially depressed. (Nikon Remote Cord MC-10, recommended for MD-12 motor drive. Meter activated as soon as MD-12 power switch is turned on. Meter stays on until motor is switched off. **Product Number: 131**)

**Product Number: 133**

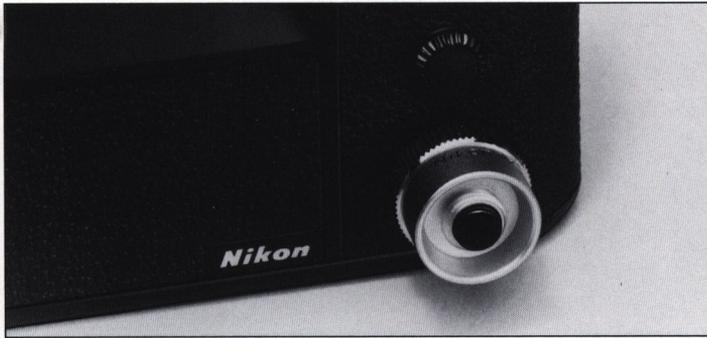
Specifications subject to change without notice.

# Nikon Motor Drive Accessories

## Nikon Remote Socket Shutter Release MR-2

The MR-2 shutter release plugs into the remote terminal of the MD-4 or MD-12 motor drive. It's convenient when shooting vertically-composed pictures, and also allows the motor to be triggered with either the AR-2 cable release or AR-4 double cable release. Does not activate meter circuit when depressed halfway.

**Product Number: 662**



## Nikon Pistol Grip II and Connecting Cord MC-3

For added stability in hand-held shooting, the Pistol Grip II can be screwed into either the motor drive's tripod socket or the tripod mounting collar on telephoto lenses. The grip is connected to the motor drive by Connecting Cord MC-3, but may also be used with the AR-6 cable release attached directly to the camera's shutter release button.

**Product Numbers: 45; 28/Connecting Cord MC-3**



Specifications subject to change without notice.



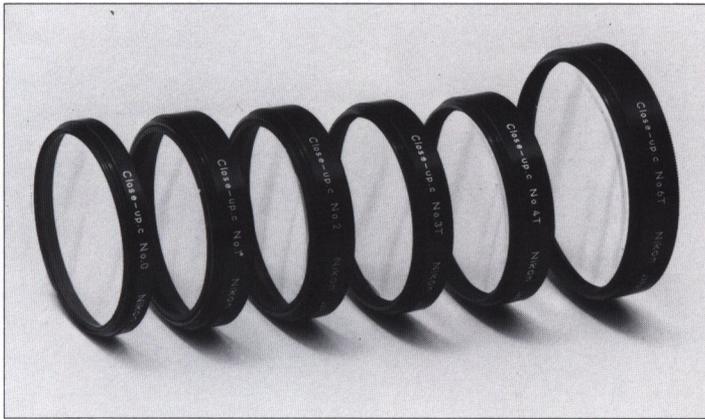
# Nikon Close-Up Accessories

## Nikon Close-Up Attachment Lenses

Nikon close-up lenses decrease the minimum focus distance of a lens and increase its magnification. Available in 52mm and 62mm sizes, they screw directly into the attachment thread of the prime lens so automatic diaphragm control and full aperture metering are still operable. All Nikon close-up lenses incorporate Nikon Integrated Coating (NIC) for improved contrast and virtually flare-free images.

Nikon Close-Up Lenses Numbers 0 (0.7 diopters), 1 (1.5 diopters) and 2 (3 diopters) can be used on any lens with a 52mm attachment size. Numbers 1 and 2 are designed primarily for normal lenses; No. 0 is for longer focal length lenses. The longer the focal length of the prime lens, the greater the magnification. The two-element design of Numbers 3T (1.5 diopters), 4T (3 diopters), 5T (1.5 diopters) and 6T (3 diopters) is optically formulated for telephoto lenses from 70 to 200mm. Numbers 3T and 4T have 52mm threads; 62mm for the 5T and 6T.

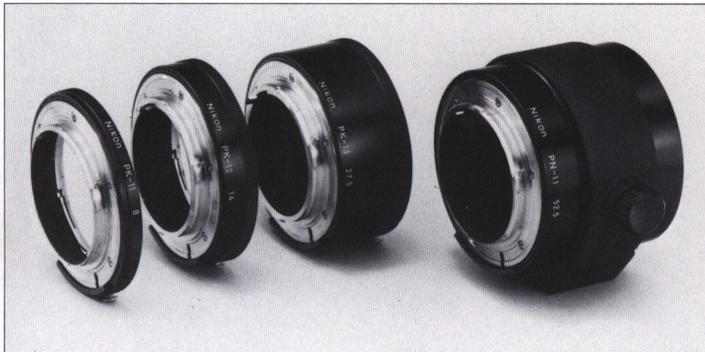
**Product Numbers: 2732/#0, 52mm; 2733/#1, 52mm; 2734/#2, 52mm; 2736/#3T, 52mm; 2737/#4T, 52mm; 4536/#5T, 62mm; 4537/#6T, 62mm**



## Nikon Automatic Extension Tubes

Extension tubes increase the lens-to-film plane distance for additional magnification. They mount between the lens and camera body either singly or in various combinations, and retain automatic diaphragm and meter coupling of AI lenses by means of a ball-bearing mounted diaphragm control mechanism. When used with Micro-Nikkor lenses (PK-13 with the 55mm f2.8; PN-11 with the 105mm f4), reproduction ratios from one-half to full life-size are possible. Additionally the PN-11 ring features a rotatable tripod mounting collar. Automatic Extension Tube PK-11 provides 8mm of extension; PK-12 allows 14mm, PK-13 extends the lens 27.5mm and the PN-11, 52.5mm.

**Product Numbers: 2651/PK-11; 2652/PK-12; 2653/PK-13; 2647/PN-11**



## Nikon Manual Extension Tubes

Nikon's manual extension tubes are available separately or in a set of five which can be used in nine different combinations with lenses from 18mm to 300mm. When the manual extension rings are mounted between the lens and camera, direct coupling of the lens diaphragm with the meter is not provided. However, a Nikon camera's built-in through-the-lens light meter can still be used for exposure determination by the stop down method. Aperture-priority automatic exposures are also possible. The following extension lengths are available: K-1, 5.8mm; K-2, 5mm; K-3, 5.8mm; K-4, 10mm; K-5, 20mm.

**Product Number: 2710, Extension Tube Set K with case**



## Nikon Lens Reversing Rings BR-2 and BR-3

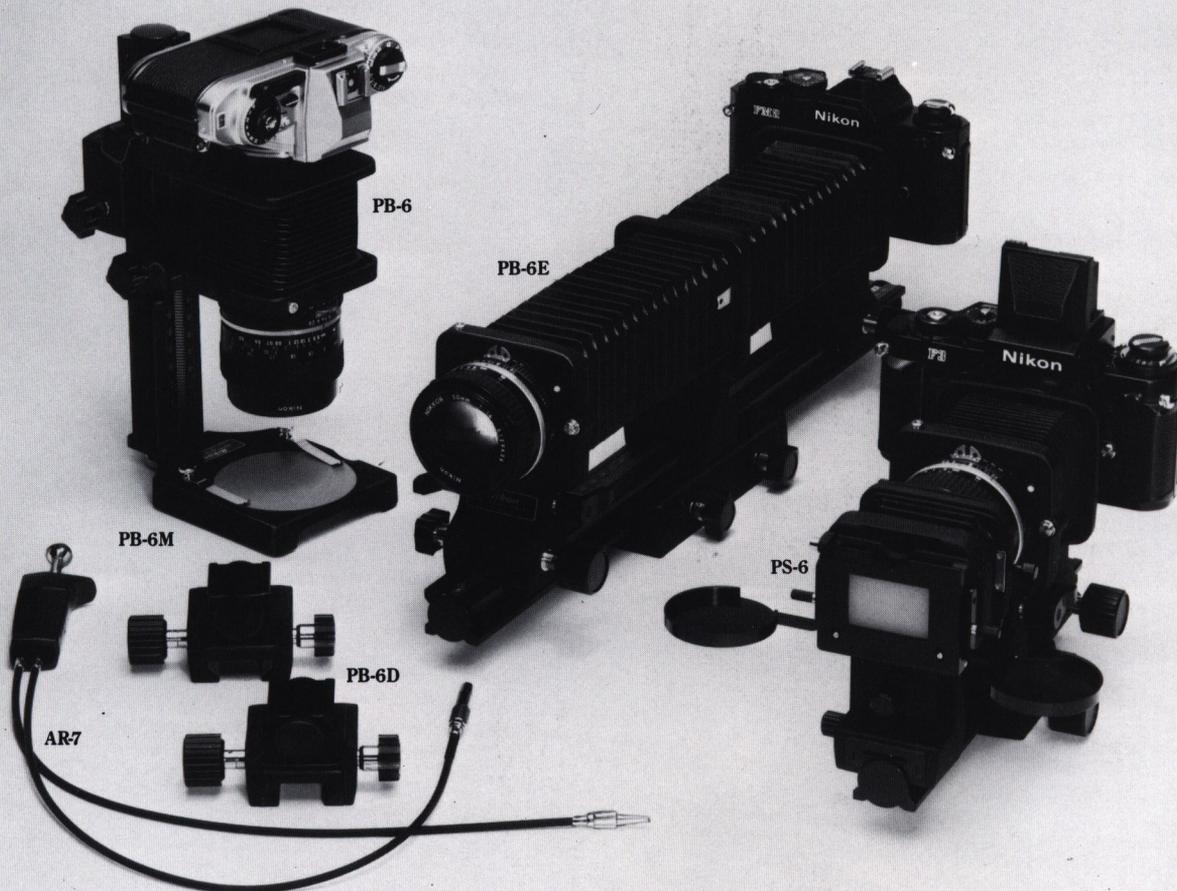
The Macro Adapter Ring BR-2(L) permits mounting a Nikon lens in reverse by its 52mm front thread to obtain the best possible performance at reproduction ratios greater than life-size. The ring also increases the working distance for improved illumination when using a normal or wide angle lens at these higher reproduction ratios. Metering is accomplished by the stop down method and focusing by moving the camera in and out. Nikon Adapter Ring BR-3(R) converts the bayonet mount of a reverse-mounted lens to a 52mm attachment thread for mounting accessories such as filters or lens hoods.

**Product Numbers: 2630/BR-2; 2629/BR-3**



Specifications subject to change without notice.

# Nikon Close-Up Accessories



## Nikon Bellows Unit PB-6

The Nikon PB-6 Bellows Unit is the central component of a highly flexible macrophotographic system. It can produce highly magnified images with lenses from 20mm to 200mm, and its versatility can be further increased with a wide range of accessories. The PB-6 bellows is designed as a single unit with a doubletrack rail which permits shifting the entire camera/lens/bellows along the lower track for fine focusing without the need to change the reproduction ratio setting on the upper track. It provides continuously variable extension from 48mm to 208mm, with two built-in scales for accurate determination of the bellows extension regardless of the position of the camera or lens panels. For full-aperture viewing and stop down metering, the front lens panel has a semi-automatic diaphragm control, which may be operated manually or with the Nikon Double Cable Release AR-7. The modular construction of the PB-6 allows the lens panel to be reversed and the rear camera standard permits shooting a horizontal or vertical format.

**Product Number: 2660**

## Nikon Extension Bellows PB-6E

The PB-6E extension bellows can be connected to the main PB-6 bellows unit for ultra-high magnifications—up to 23X with a reverse-mounted 20mm Nikkor

lens. Continuously variable extension of the bellows and semi-automatic diaphragm operation are maintained. The extension scale of the PB-6E joins perfectly with that of the PB-6 for accurate determination of extension, from 83 to 438mm.

A large tripod/rail connector provides excellent stability, however, the entire unit cannot be shifted along its lower track to focus.

**Product Number: 2663**

## Nikon Slide Copying Adapter PS-6

The PS-6 slide copying adapter attaches to the upper dovetail section of the PB-6's rail in front of the lens panel. It permits full-size or cropped duplicates from any 35mm original. The slide copier can be shifted sideways in either direction up to 9mm, or may be moved up and down up to 6mm for cropping small portions of the original. The PS-6 accepts both mounted transparencies and uncut rolls of film. A small light-shielding bellows clamps directly on the front of a lens, or the rear of the lens panel when a lens is mounted in reverse.

**Product Number: 2661**

## Nikon Macro Copy Stand PB-6M

The PB-6M is both a copy stand and specimen stage for vertical and horizontal shooting. It attaches to the end of the

bellows rail and incorporates built-in clips to hold a specimen in place. The PB-6M is supplied with two baseplates—white translucent acrylic which allows direct or trans-illumination, and an 18% grey aluminum disc that can be used for through-the-lens metering.

**Product Number: 2662**

## Nikon Bellows Spacers PB-6D

These accessories are required for mounting a motor-driven Nikon camera on the PB-6 bellows unit. They attach to the lens and camera standards and elevate the motor-driven camera high enough so it may be rotated to a horizontal or vertical format anywhere along the rail. Two are required.

**Product Number: 2664**

## Nikon Double Cable Release AR-7

To facilitate working with the semi-automatic diaphragm control on the PB-6 bellows, the AR-7 double cable release is recommended. It attaches between the camera's threaded shutter release button and the lens panel on the bellows unit. Pressing the AR-7's plunger stops down the bellows-mounted lens first for metering or previewing depth-of-field, and then fires the shutter. (Note: Use AR-4 Double Cable Release with F2 cameras.)

**Product Number: 668; 2636/AR-4**



## Nikon Ringlight SR-2

Balanced for daylight color temperature, the Nikon Ringlight SR-2 provides a 65° circle of shadowless illumination. It screws directly into the 52mm filter thread of every Nikon lens from 35mm to 200mm, for a broad range of close-up applications. The SR-2's power source can be set at full or one-quarter power output for control of depth-of-field within its shooting range—approximately six to 18 inches from the film plane. Both Nikon Ringlights derive power from either AC or DC power packs.

**Product Number: 342**

## Nikon Macro Ringlight SM-2

The Macro Ringlight SM-2 is designed for close-up photography at reproduction ratios of 1:1 (life-size) and higher, and helps eliminate blurring which may be caused by any slight camera movement. The SM-2 has a bayonet mount for use with reverse-mounted Nikon lenses from 20mm to 135mm. A convenient lens aperture opening button opens the diaphragm for full-aperture focusing, simultaneously lighting the built-in focusing lamp.

Both Nikon Ringlights are supplied with handy charts for accurate manual exposure determination at full and one-quarter power settings.

**Product Number: 343**

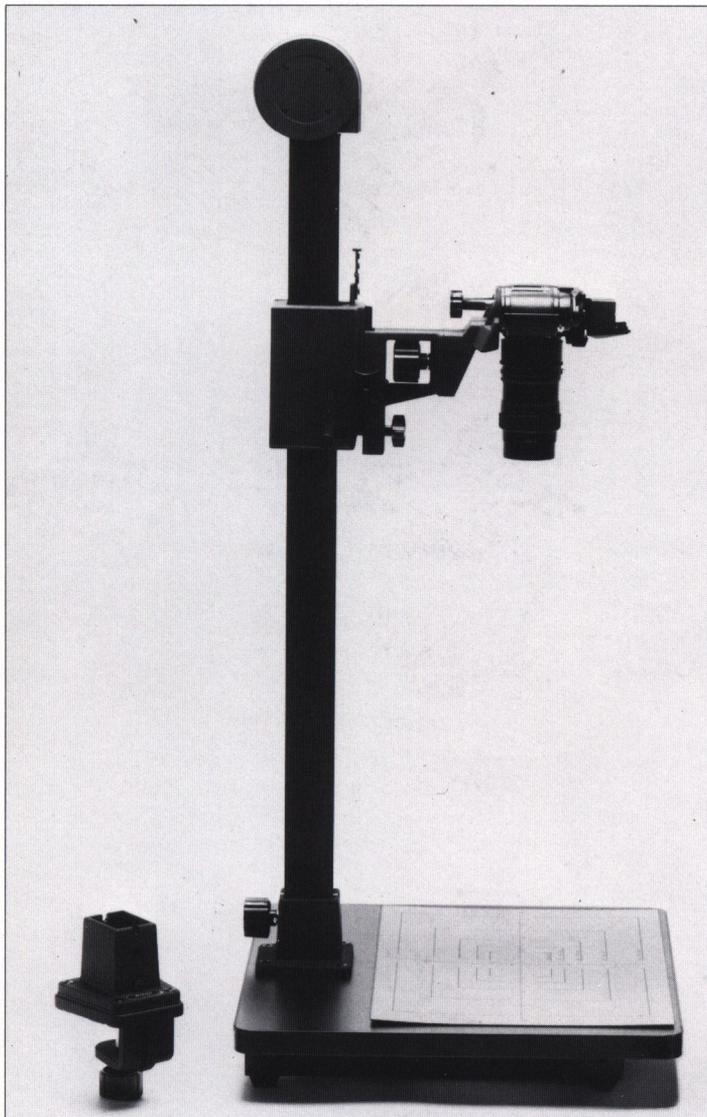
## Technical Specifications: Nikon Ringlight SR-2/SM-2

	SR-2	SM-2
Attachment:	Front (52mm) lens mount	Reverse lens bayonet mount
Manual Light Output Control:	Full and ¼ power output	Full and ¼ power output
Guide Number: ASA/ISO 100 (ft.)	52 (full), 26 (¼)	Not ratable at macro distances
Angle of Coverage: (Horiz. x Vertical)	65°	—
Recycling Time*	Up to 12 sec.	Up to 12 sec.
Number of Flashes: (Alkaline batteries)	600 (full), 1400 (¼)	600 (full), 1400 (¼)
Power Source:	DC unit LD-1 AC unit LA-1	DC unit LD-1 AC unit LA-1
Dimensions:	4.2 x 5.5 x 1 in. (106 x 140 x 25mm)	2.8 x 3.9 x 1.4 in. (70 x 100 x 35mm)
Weight:	7.1 oz. (200g)	6.5 oz. (185g)
Accessories:	AC Power Unit LA-1, DC Power Unit LD-1	AC Power Unit LA-1, DC Power Unit LD-1
Product Number:	342	343

\*With fresh alkaline batteries

Specifications subject to change without notice.

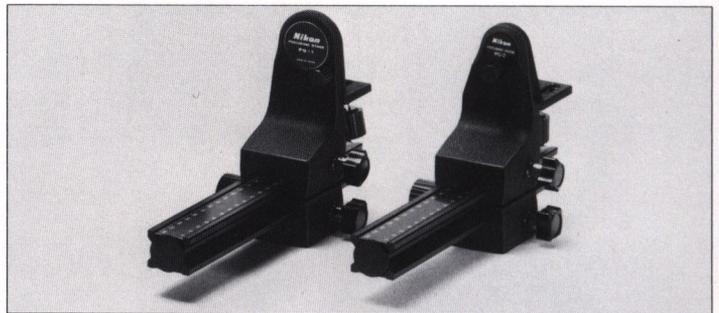
## Nikon Close-Up Accessories



### Nikon Repro-Copy Outfit PF-4

The Nikon Repro-Copy Outfit PF-4 is recommended for reproducing high-quality photographic copies of drawings, printed materials, etc. It consists of a camera cradle, upright column and flat baseboard. The film plane of the suspended camera remains parallel to the subject being copied. For ease of operation the camera cradle is counterbalanced with coarse and fine focusing adjustments. The copy stand's upright column has scales of reproduction ratios and diagonal subject dimensions, calibrated for the 55mm Micro-Nikkor lens. Reproduction ratios from approximately 1/14X to 1/2X (1:1 with PK-13 extension ring) are obtainable with the 55mm micro lens. A standard 18% grey card/focusing sheet is supplied. The column can be removed and rotated for photographing larger copies on the floor, or may be mounted in the accessory Table Clamp PC-3.

**Product Numbers: 2757/Repro-Copy Outfit PF-4;  
2753/Table Clamp PC-3**



### Nikon Focusing Stage PG-1 and PG-2

Nikon Focusing Stages PG-1(L) and PG-2(R) are designed to be used on a tripod to facilitate close-up photography. Each permits coarse and fine focusing adjustments and provides 360mm of tracking for focusing without changing the set reproduction ratio on the lens or bellows unit. Focusing Stage PG-1 is for a camera body only; PG-2 accepts a camera with motor drive attached.

**Product Numbers: 2738/PG-1; 2756/PG-2**

## Nikon Viewing Accessories



### Nikon Eyepiece Correction Lenses and Nikon EM Eyepiece Adapter

Nikon Eyepiece Correction Lenses allow photographers with limited visual acuity to view and focus through a camera with greater ease. They screw directly into the threaded eyepiece of Nikon cameras. Eyepiece adapter DK-1 (not shown) adapts standard F3 correction eyepieces to the DE-3 High-Eyepoint finder. To use F3, FM, FM2 or FE correction lenses or viewing accessories on the EM or FG, an Eyepiece adapter (**Product Number 2370**) is required.

### Nikon Eyepiece Correction Lens Selector

Prod. No. F3*	FM/FM2/FE	EM/FG	Description	Corrects For
2918	2938	2948	-5 Diopter	Nearsightedness
2917	2937	2947	-4 Diopter	Nearsightedness
2916	2936	2946	-3 Diopter	Nearsightedness
2915	2935	2945	-2 Diopter	Nearsightedness
2914	2930	2940	0 Diopter	Normal Vision
2922	2931	2941	+0.5 Diopter	Farsightedness
2919	2932	2942	+1 Diopter	Farsightedness
2920	2933	2943	+2 Diopter	Farsightedness
2921	2934	2944	+3 Diopter	Farsightedness

\*Note: Items designated (\*) also fit F2, F, EL2 and Nikkormats; require removal for loading/unloading Nikon FM and FE cameras, due to the compact size of these models. Accessories designated for Nikon FE/FM may be used with all other Nikon cameras.

Specifications subject to change without notice.

# Nikon Viewing Accessories



## Nikon Eyepiece Magnifier DG-2 and Right Angle Viewing Attachment DR-3

The DG-2 eyepiece magnifier(L) screws into the finder eye-piece of Nikon cameras to produce 2X magnification of the center portion of the image. For convenience, it is hinged and can be flipped up for full screen composition. The DG-2 has a built-in diopter adjustment and comfortable rubber eyecup. The DR-3(R) provides an upright and unreversed right angle view of the entire focusing screen. It is an extremely handy accessory for Nikon cameras that don't incorporate interchangeable finders, and facilitates low angle viewing and work with a copystand. The DR-3 may be rotated 360°.

**Product Numbers: 2355/DG-2; 2326/DR-3**



## Nikon Waistlevel Finder DW-3 and 6X High Magnification Finder DW-4

Two optional interchangeable viewfinders for the Nikon F3 are designed for easier viewing during close-up photography. All retain virtually 100% viewing accuracy and the camera's TTL metering. The DW-3 waistlevel finder(R) provides an upright, but reversed image and incorporates a built-in, pop-up 5X magnifier for critical focusing. The DW-4 finder(L) offers 6X magnification of the entire picture area with an upright, but reversed image, for critical focusing when the Nikon F3 is attached to a bellows unit or microscope. (Exposure display is not reversed with either finder.) This finder is required for aerial-image focusing with Type C or M screens. The DW-4 has a built-in rubber eyecup and eyepiece cover, and permits +3 to -5 diopter adjustment for individual eyesight correction.

**Product Numbers: 2383/DW-3; 2384/DW-4**

## Nikon Focusing Screens

Although the standard K screen supplied in all Nikon cameras may be used, the following interchangeable focusing screens are recommended for easier, more accurate focusing of close-up subjects with the Nikon F3, FE and FM2.

**Type B:** Matte/Fresnel field with 12mm diameter central fine ground matte focusing spot.

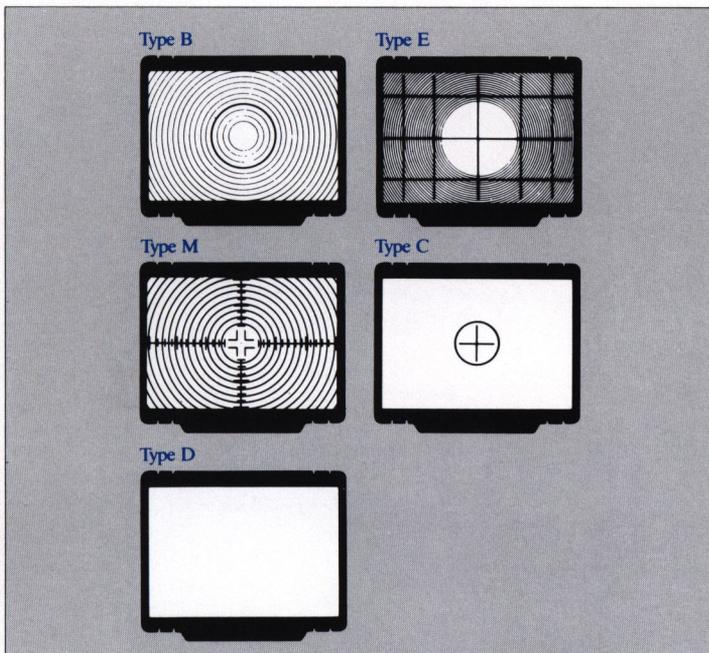
**Type E:** Similar to Type B, but with etched grid to aid subject alignment.

**Type M:** (For F3 only) clear Fresnel field with etched double cross-hair reticle and 1mm gradation reference scale; recommended for use with DW-4 High Magnification Finder.

**Type C:** (For F3 only) fine ground matte field with central 4mm diameter clear spot and cross-hair reticle; recommended for use with the DW-4 High Magnification Finder.

**Type D:** (For F3 only) plain ground matte without Fresnel field; recommended for copywork.

**Product Numbers: 2553/Type B for F3; 2358/Type B for FE and FM2; 2556/Type E for F3; 2359/Type E for FE and FM2; 2567/Type M for F3; 2554/Type C for F3; 2555/Type D for F3**



# Nikon Compartment Cases



Nikon compartment cases are specially designed to be a safe, convenient way to carry a variety of cameras, lenses and accessories. Each provides a high degree of flexibility for

photographers with specialized requirements, and each offers a high degree of security for delicate optical accessories while affording easy access to all sections of the case.

## Compartment Case Selector\*

	FB-8	FB-11A	FB-14	FB-15	FB-16	FB-17
	Black leatherette; back and top swing away from body; built-in steel plate has three bayonet mounts; built-in filter case outside storage compartment; combination hand/shoulder strap.	Brown leather; two-tier design; top tray has two camera cradles with lens straps and separate Velcro lens retainer; removable partitions in lower section; CA-1 filter case supplied; hand straps and shoulder strap provided.	Black leather; vertical design with extra-wide zipper opening; lightweight; extra-strong Y-shaped shoulder strap.	Brown leather; two-tier design; bottom level has three compartments with removable partitions; upper tray with moveable camera cradle; reinforced hand straps and shoulder strap.	Brown leatherette; snap-open lid; moveable partitions; reinforced hand strap.	Leatherette; top opens; large front pouch; moveable partitions; shoulder strap.
Nikon F3, Nikon FM, FE, FM2, Nikon EM, FG	2	2	1	2	1	1
Lenses	4-5 (up to 300/4.5)	6-7 (up to 500/8)	3 (up to 300/4.5)	2 (up to 400/5.6)	2 (up to 200/4)	3
Motor Drive	—	MD-4, MD-2, MD-3, F-36, MD-12 or AW-1	—	MD-2, MD-3, MD-4, F-36, MD-12 or AW-1	MD-2, MD-3, MD-4, F-36, MD-12 or AW-1	MD-E MD-14
Compact Electronic Flash	Yes	Yes	Yes	Yes	Yes	Yes
Large Size Accessory (such as Bellows)	—	Yes	—	—	—	—
Side Pocket for Sundries	Yes	None	Yes	None	None	Yes
Approximate Outer Dimensions (LxWxH)	12.6x8.3x8.3 in.	15x11.4x11.4 in.	11.4x4.7x9.4 in.	13x7.5x9.1 in.	8.7x7.5x6.7 in.	11x4.3x6 in.
Accessories Provided	—	4 Partitions Cushion Pad Filter Pouch	3 detachable pads	3 Partitions 3 Flexible Partition Sheets Camera Pouch	2 partitions	1 Cushion Pad 2 Partition Sheets
Shoulder Strap	Yes	Yes	Yes	Yes	Yes	Yes
Weight	6.2 lb. (2.8kg)	6.8 lb. (3.1kg)	1.9 lb. (0.9kg)	5.5 lb. (2.5kg)	1.9 lb. (0.9kg)	1.9 lb. (0.9kg)
Product Number	496	500	503	477	492	4498

\*This selector chart is provided to suggest possible combinations of equipment which may be stored in each of the cases listed. In most instances, many alternate components will also fit. The user should experiment to determine the ideal case for his own equipment. The number of lenses accommodated in each case will vary depending on the size of the individual lenses.

# Nikon Camera Cases



## Nikon Camera Cases

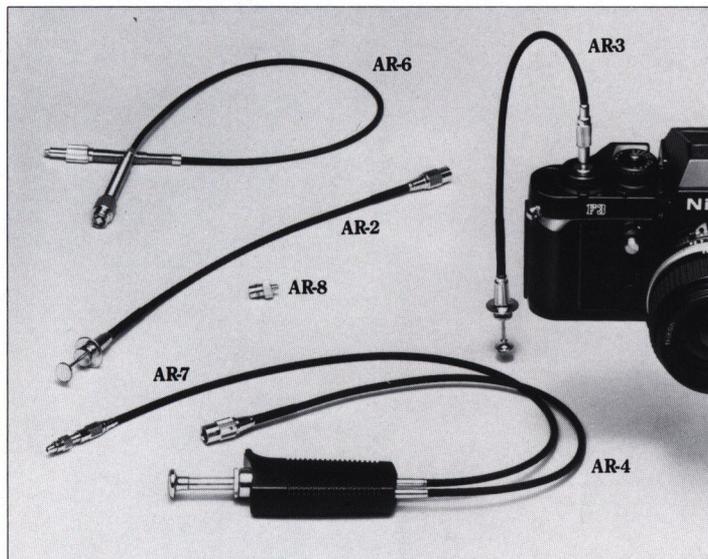
Nikon camera cases are designed to keep cameras well protected during travel and heavy use. Hard, Eveready and Semi-Soft cases are of a two-piece design, with optional front flaps and base portions to accommodate a zoom lens and data back. Some cases are also available to hold a camera with motor drive. One-piece Nikon soft cases attach quickly to a camera's neckstrap eyelets for protection, and may be easily folded and stored in a pocket while photographing.

## Nikon Case Selector

Product Number	Model	Type	F3	Nikon FE/FM/FM2	FG	EM	With lenses from 16mm to 58mm as well as:
4405	CF-20	Semi-Soft	x				—
4409	CF-21	Semi-Soft	x				—
4410	CF-21A	Front Flap	x				35-70mm
4538	CF-23D	Base Portion	x				MF-14 Data Back
4481	CF-7	Semi-Soft		x			85mm
4482	CF-8	Semi-Soft		x			105mm, 36-72mm
4483	CF-9	Semi-Soft		x			85mm, 36-72mm
							MD-12 Motor Drive
4489	CF-8A	Front Flap		x			35-70mm
4491	CF-15D	Base Portion		x			MF-12 Data Back
4517	CF-17	Semi-Soft			x		—
4518	CF-18	Semi-Soft			x		36-72mm
4519	CF-19D	Base Portion			x		MF-15 Data Back
4495	CF-11	Eveready				x	—
4497	CF-12	Eveready				x	85mm
4494	CF-14	Eveready				x	36-72mm
4492	CF-16	Eveready				x	36-72mm, MD-E Motor Drive
422	CS-7	Soft Pouch	x	x	x	x	—
425	CS-8	Soft Pouch	x	x	x	x	—
426	CS-9	Soft Pouch	x	x	x	x	135mm
427	CS-10	Soft Pouch	x	x	x	x	200mm, 80-200mm
4414	CS-15	Soft Case	x				—
4415	CS-16	Soft Case		x			—
4406	CB-1	Shoulder Case (Blue)	x	x	x	x	—
4407	CB-2	Shoulder Case (Green)	x	x	x	x	—
4408	CB-3	Shoulder Case (Beige)	x	x	x	x	—
410	CF-6	Semi-Soft Utility	x	x			85mm, 105mm, 135mm, 180mm, 200mm, 2 compact lenses, accessories

Note: All Hard and Semi-Soft cases supplied with neckstrap except CF-6 and CS-B.

# Nikon General Accessories



## Nikon Cable Releases

Nikon Cable Release AR-3 screws into the shutter release button of all current Nikon cameras. Model AR-2 and Double Cable Release AR-4 fit the threaded shutter release collar of the FE and FM, but may be used with other Nikon models when attached to the Release Adapter AR-8. The AR-6 is a cable release that attaches to between the Pistol Grip Model II and the shutter release button of Nikon cameras. AR-7 Double Cable Release (shown with bellows units on previous page) is for Nikon F3 and other current cameras.

**Product Numbers: 664/AR-3; 660/AR-2; 669/AR-8; 2636/AR-4; 667/AR-6; 668/AR-7**



## Nikon Soft Shutter Release AR-1 and AR-9

The AR-9 soft shutter release (R) is compatible with all current Nikon cameras, while model AR-1 (L) fits the FE, FM and F2 cameras. They attach to the camera's shutter release button to help minimize camera shake when the shutter is tripped, especially at slower shutter speeds.

**Product Numbers: 4417/AR-9; 661/AR-1**



## Nikon Panorama Head AP-2

The Panorama Head AP-2 fits between the camera and tripod, and enables taking a sequence of pictures which can later be fitted together to form a single panoramic photograph. The head rotates 360° with clickstops that correlate to the covering angles of many popular Nikon lenses (28, 35, 50, 85 and 105mm). A bubble level is built in to assure perpendicularity and uniform perspective.

**Product Number: 2028**



## Nikon Neckstraps

There are three styles of neckstraps available from Nikon. Two are made of strong webbed nylon fabric that flares in the middle to relieve pressure on the neck, but narrows elsewhere for easier handling. A stylish leather neckstrap with non-slip shoulder pad is also available.

**Product Numbers: 635/leather; 638/fabric (yellow); 639/fabric (black); 4507/wide nylon (yellow); 4508/wide nylon (wine)**

Specifications subject to change without notice.

# Nikon General Accessories

## Anti-Cold Battery Pack DB-2

In extremely frigid temperatures, a Nikon camera will operate properly, but the batteries in the camera may not. The Anti-Cold Battery Pack DB-2 connects to all Nikon SLR cameras which have a screw-in battery compartment via a 3.5-foot cord. The other end of the DB-2 cord contains two AA-type penlight batteries, and may be kept in a pocket to keep them warm.

**Product Number: 3062**



## Nikon CS-13 Blimp Case

The CS-13 Blimp Case, for all Nikon cameras, is thickly padded for increased protection against the cold, and effectively dampens camera noise. It has a front opening so any lens can be mounted on the camera and a Velcro top cover with clear window to see the controls on top of the camera. The photographer's right hand fits through a tight elastic sleeve, permitting access to all camera controls.

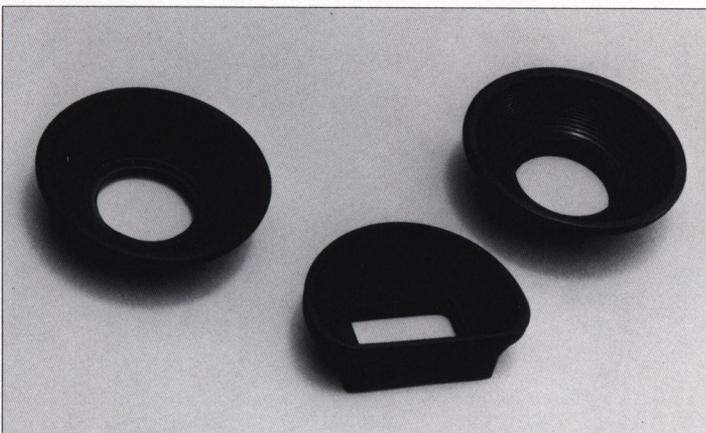
**Product Number: 4484**



## Nikon Rubber Eyecups

Nikon's rubber eyecups improve the apparent brightness and contrast of the viewfinder image by preventing stray light from entering the eyepiece. In strongly sidelit conditions, they provide the additional benefit of sealing out stray light which may enter through the eyepiece and influence the TTL exposure reading. Their soft construction permits opening the camera back without removing the eyecup.

**Product Numbers: 2312/F3; 2361/FE, FM, FM2; 2939/EM,FG**



## Not Illustrated Nikon Tripod Adapter

When using the compact Nikon FE, FM or FM2 on a tripod with a large head, the tripod adapter is recommended as a spacer to enable turning the aperture ring and focusing collar on the lens.

**Product Number: 641**



Nikon Speedlight SB-15  
Nikon Speedlight SB-14  
Nikon Speedlight SB-11  
Nikon Speedlight SB-12  
Nikon Speedlight SB-E  
Nikon Speedlight SR-2/SM-2/SB-6  
Nikon Speedlight Accessories

The full potential of Nikon 35mm SLR cameras can only be reached through the use of Nikon system accessories. For example, while other flash units may be connected to Nikon cameras, only Nikon Speedlights interface electronically with all of the cameras' automatic functions. When using the Nikon F3 or FG, photographers cannot utilize the beneficial feature of automatic through-the-lens (TTL) flash metering without a Nikon Speedlight. Without the Speedlight SB-E, Nikon EM owners wouldn't be informed if their selected auto-flash aperture setting was correct or not. Clearly, a Nikon Speedlight is the obvious choice for every Nikon camera owner. Plus, there's full compatibility throughout the entire system.

## Flash for Better Pictures

There are many common shooting situations, both day and night, in which a Nikon Speedlight can substantially improve the quality of a picture, or be used for special creative effects. In dim light, a Nikon Speedlight can eliminate the blurriness caused by slow shutter speeds and hand-held cameras. Indoors, because a Nikon Speedlight more closely simulates daylight, it can eliminate the orange or green cast that commonly results from shooting under artificial light. Close-up photographers can also benefit from a Nikon Speedlight. Not only does flash allow the photographer to stop down for greater depth of field, it also provides the added advantage of stop action shooting. Even on bright sunny days, a Nikon Speedlight has many uses. In portrait photography especially, it fills in the daylight's deep shadows, resulting in less harsh, more attractive photographs.

Nikon Speedlight electronic flash units lend themselves superbly to creative photography, too. They're useful in multiple exposure shots or for making ghostly image trails when shooting at slower-than-normal shutter speeds. Photographers can bounce the light off the ceiling or wall for softer light. With a light duration as quick as 1/30,000 sec., a Nikon Speedlight can freeze action too fast for a camera's shutter to capture.

## Dependable Operation

Like Nikon cameras and lenses, Nikon Speedlights offer superior overall quality and dependable operation. The evidence is in the care Nikon takes with even the smallest elements of design. For example, the guide numbers for all Nikon Speedlights are unusually accurate. Additionally, top-of-the-line Nikon Speedlights utilize a compact, high-efficiency flashtube to deliver maximum light output. A more efficient flashtube means less strain on the electrical system, less drain on the battery, shorter recycling times and more consistent exposures. And there's virtually no light fall-off at the corners of the frame and no hot spots in the center. Another small but important Nikon Speedlight feature is the low voltage triggering circuit. It provides a safety factor not normally found on other electronic flash units.

## Nikon's Dedication

Nikon's dedication to making the world's finest photographic equipment is well-known. But in today's electronic flash technology, the term "dedication" means more. It refers to the electronic transfer of information between camera and flash.

Nikon's most significant breakthrough has been the perfection of its through-the-lens (TTL) flash metering system. Flash output is determined by a sensor inside the camera, not on the flash unit. So not only is the accuracy of exposures enhanced by measuring only the image-forming light, but the system automatically compensates for any filters or lens attachments. Additionally, for automatic flash exposures, the camera has available its full range of f/stops, not merely the two or three standard stops offered by non-TTL flash systems. Obviously, full TTL dedication provides a flash that's not only more versatile and easy to use, but virtually mistake-proof.

## Full Line Compatibility

All Nikon Speedlights are compatible with all Nikon cameras, offering a variety of performance capabilities. The level of dedication does vary, however, depending on which flash/camera combinations are used. A chart on page 6 illustrates all possibilities.

The Nikon EM and FE cameras have significant automatic capabilities. In conjunction with a Nikon Speedlight electronic flash, they can program the correct X-sync speed automatically and activate the camera's LED flash ready-light. With the manual Nikon FM and FM2 cameras, compatibility with a Nikon

Speedlight can be achieved once the shutter sync speed is manually set. The Nikon FM2 also has an LED flash ready-light in the eyepiece that will blink as a warning if the shutter can't be synched. With the Nikon F3 and FG cameras, flash sophistication is even greater. Each camera offers a unique through-the-lens flash metering system to provide automation and accuracy through practically any lens opening, without the need for difficult exposure computations. And, it's impossible for either camera to be used out of sync with its flash.

There are also specialty Nikon Speedlights too: Two ringlight models that eliminate shadows, and a repeating strobe that flashes up to 40 times per second.

Despite their variety of prices and uses, all Nikon Speedlight electronic flash units have one thing in common. They're Nikons—built with the same attention to design, strength and dependability that makes Nikon products the photographic equipment used by more professionals than all other 35mm cameras combined.

# Nikon Speedlight SB-15



- Provides automatic through-the-lens (TTL) flash metering with the Nikon FG.
- Allows standard auto-flash photography with other Nikon SLR cameras.
- Motor drive setting permits flash photography at the rate of 3.8 frames-per-second.
- Rotating flash head to bounce light up or down.
- LED indicator warns of incorrect connection or insufficient exposure.

The Nikon Speedlight SB-15 provides TTL flash metering for automatic exposure control when attached to the Nikon FG camera. On other Nikon cameras, the SB-15 permits

standard (non-TTL) auto-flash operation, as well as full manual control. Plus, the SB-15 Speedlight activates dedicated camera functions, including automatic shutter programming and flash ready-light indication.

The SB-15 Speedlight features a tilting flash head that can be rotated 180° with a clickstop at the 90° position. Additionally, the flashtube module can be swiveled in an arc of 15°, 30°, 60° or 90° to provide a variety of bounce lighting effects, or for photographing close-up subjects with flash. Despite its compact size, it's powerful enough to shoot in sync with a motor drive at up to 3.8 frames-per-second.

The SB-15 offers two aperture settings for non-TTL auto-flash exposures up to 20 feet away at ASA 100. Manual operation is simply a matter of checking the subject distance and setting the correct f/stop indicated on the SB-15's calculator dial (see inset photo).

When using the SB-15 with the Nikon FG, the TTL flash metering system, which measures the illumination directly off the film plane, permits virtually any aperture setting (depending on subject distance) from f2 to f22 for total control over depth of field as well as recycling time. Plus, the FG's exposure compensation control can automatically bias the flash exposure reading.

In both TTL and non-TTL automatic modes, the SB-15's ready-light blinks to indicate if the full flash output may have been insufficient for a correct exposure, or if the unit has been improperly attached to the camera. A fail-safe feature for virtually mistake-proof flash photography. (Signals vary depending on camera used.)

The SB-15 incorporates fast-recycling thyristor circuitry and is powered by four AA-type batteries. It can illuminate a 35mm lens field, or with the supplied diffuser, cover the view from a 28mm wide angle.

## Technical Specifications: Nikon Speedlight SB-15

**Type:** Hot Shoe mount

**Light Output Control:** Automatic TTL control with FG camera; automatic via front-mounted light sensor with other cameras; Manual control at full and 1/3 power

**Guide Number (ASA/ISO 100 (ft.)):** 82 (59 with Wide Flash Adapter SW-6); 23 at motor drive setting

**Angle of Coverage (Horiz. x Vertical):** 56° x 40° (35mm lens); with Wide Flash Adapter; 67° x 48° (28mm lens)

**Automatic Shooting Range (ASA 100):** TTL, 2-40 ft. (0.6-12m); two auto f/stops: f4, 2-20 ft. (0.6-6.2m); f8, 2-10 ft. (0.6-3.1m)

**Recycling Time\*:** Up to 8 sec.

**Number of Flashes:** Alkaline batteries, 160; Zinc-Carbon batteries, 60; NiCad batteries, 60

**Power Source:** 4-1.5V AA-type batteries

**Dimensions:** 4 x 3.5 x 1.6 in. (101 x 90 x 42.5mm)

**Weight:** 9.5 oz. (270g)

**Other:** Flash head rotates vertically through 180° with clickstop at 90°, flash tube module tilts with clickstops at 15°, 30°, 60° and 90°; LED blinks for incorrect mounting and insufficient exposure warning

**Accessories:** Wide Flash adapter and soft case supplied

**Product Number:** 4515

\*with fresh alkaline batteries

Specifications subject to change without notice

# Nikon Speedlight SB-16



- **Nikon's Most Powerful and Versatile Speedlight.**
- **Interchangeable flash unit couplers for ISO or F3-type hotshoe contacts.**
- **Provides automatic TTL flash metering with Nikon F3, FG and FE2.**
- **Standard dedicated auto flash operation with other Nikon cameras.**
- **Rotating and tilting main flash has zoom head.**
- **Secondary flash provides catch light.**
- **Can fire in synch with a Nikon motor drive.**

The unique configuration of the Speedlight SB-16, consists of a main flash unit and interchangeable flash unit coupler. The main electronic flash unit body with AS-8 Flash Unit Coupler, designated SB-16A, is used exclusively with Nikon F3-series cameras. When the SB-16 is connected to the AS-9 Flash Unit Coupler,

designated SB-16B, the Speedlight can be mounted on standard ISO-type hot shoes. In all cases, the Speedlight SB-16 provides automatic through-the-lens flash metering with the Nikon F3, FG and FE2 cameras, or auto flash (non-TTL) operation with other cameras.

When the Speedlight SB-16 is mounted on a Nikon SLR that features TTL flash metering or a standard dedicated flash system, electronic signals from the flash automatically program the camera's shutter to the proper X-synch speed. At full charge, a second signal activates the camera's flash ready-light. A separate silicon photocell in Nikons with automatic TTL flash metering measures the flash illumination off the film plane so the camera actually controls the Speedlight's output. At full light output, when underexposure is possible, the flash ready-light blinks as a warning after the exposure. For auto flash (non-TTL) exposures, the light is measured by a photocell on the SB-16.

The Nikon Speedlight SB-16 is designed with a main and secondary flash head. The main flash is adjustable vertically, up to 90°, or horizontally with a full arc swing of 270°. Its secondary flash

tube is fixed, pointing straight ahead as a catchlight to highlight and fill in shadows. The main flash also features a zoom head which can concentrate or diffuse the light, making it ideal for use with lenses from 28mm to 85mm or longer. The flash coverage can be extended to illuminate the field of a 24mm lens by adding the SW-7 Wide-Flash Adapter.

With the SB-16 zoom head set at normal (N), its guide number is rated at 105 in feet at ASA/ISO 100. The guide number increases to 138 when the head is zoomed to the telephoto position. In use, subjects up to 98 feet away may be properly exposed in the TTL mode; up to 33 feet in automatic, non-TTL operation. The SB-16 also incorporates a motor-drive setting that enables rapid recycling for up to four flashes-per-second, for a total of eight consecutive frames.

Powered by four AA-type alkaline-manganese batteries, the SB-16 will fire up to 100 times at full power. In the TTL, regular automatic or MD (motor-drive) shooting modes, photographers can expect many times more flashes per set of batteries. Rechargeable NiCad batteries may also be used.

# Nikon Speedlight SB-16

## Technical Specifications: Nikon Speedlight SB-16

**Type:** Hot shoe mount

**Light Output Control:** Automatic silicon-controlled rectifier and series circuitry; TTL automatic control with Nikon F3, FG, FE2; auto control (non-TTL) possible; manual

**Guide Number:** (ASA/ISO 100 ft.):

Zoom Head Setting:		(In MD mode) Zoom Head Setting:	
T	138 (42)	T	33(10)
S	125 (38)	S	31(9.5)
N	105 (32)	N	26(8)
W1	89(27)	W1	22(6.7)
W2*	62(19)	W2*	14(4.2)

\*W2 is used when the wide-flash adapter is attached with zoom head set at W1.

**Angle of Coverage** (Horiz. x Vertical):

Zoom Head Setting	Usable lens
T	23° x 31° 85mm or longer
S	34° x 46° 50mm or longer
N	45° x 60° 35mm or longer
W1	53° x 70° 28mm or longer
W2	60° x 78° 24mm or longer

**Film-Speed Range:** 25-400 (TTL); 25-800 (non-TTL)

**Zoom Head:** Four settings (T, S, N and W1) are provided for 85mm, 50mm, 35mm and 28mm lenses

**Flash Heads:** Two flash heads provided; main head tilts back 90° with click-stops at the 30°, 45°, 60° and 75° position and also rotates through an arc of 270°, 90° clockwise and 180° counterclockwise with click-stops at every 30° position; the smaller secondary head is fixed and faces straight ahead

**Power Source:** Four 1.5V AA-type alkaline-manganese penlight batteries or four 1.2V AA-type NiCad batteries

**Number of Flashes\*/Recycling Time:** Alkaline-manganese: 100/11 sec.; NiCad\*: 40/8 sec.

**TTL Auto Exposure:** Through-the-lens automatic-exposure control when the SB-16A is combined with the Nikon F3-series camera or when the SB-16B is combined with the Nikon FE2 or FG; film speeds from ASA/ISO 25 to 400; usable aperture range from f2 to f22

**Regular Auto Exposure:** Automatic exposure control via the front-mounted light sensor; two working apertures available, depending on film speed

**Manual Exposure Control:** Full output at M setting; approx. 1/16 power at MD setting

**Dimensions (W x H x D):**

Flash head unit only	3.2 x 5.8 x 2.1 in. (81 x 148 x 53mm)
AS-8 Flash Unit Coupler	2.9 x 2.6 x 2.1 in. (73 x 65 x 53mm)
AS-9 Flash Unit Coupler	2.9 x 1.6 x 2.1 in. (73 x 41 x 53mm)

**Weight:**

Flash head unit only	13.8 oz. (390g)
AS-8 Flash Unit Coupler	4.2 oz. (120g)
AS-9 Flash Unit Coupler	2.8 oz. (80g)

**Accessories:** Wide-Flash Adapter SW-7, Soft Case SS-16, Battery Holder MS-4 provided

**Product Number:** 4542/SB-16A; 4543/SB-16B

\*More flashes possible in TTL or regular automatic shooting mode or in MD mode

Specifications subject to change without notice.

### TTL Auto Shooting Distance Range: in feet (meters)

ASA/ISO Film Speed	Zoom Head Setting				
	T	S	N	W1	W2
100					
2	12-69 (3.8-21)	11-62 (3.4-19)	9.8-52 (3.0-16)	7.9-43 (2.4-13)	5.6-31 (1.7-9.5)
2.8	8.9-46 (2.7-14)	7.9-43 (2.4-13)	6.6-36 (2.0-11)	5.2-31 (1.6-9.5)	3.9-22 (1.2-6.7)
4	6.2-33 (1.9-10)	5.6-31 (1.7-9.5)	4.6-26 (1.4-8.0)	3.9-22 (1.2-6.7)	3.0-15 (0.9-4.7)
5.6	4.6-24 (1.4-7.4)	3.9-22 (1.2-6.7)	3.3-18 (1.0-5.6)	3.0-15 (0.9-4.7)	2.0-11 (0.6-3.3)
8	3.3-17 (1.0-5.2)	3.0-15 (0.9-4.7)	2.3-13 (0.7-4.0)	2.0-11 (0.6-3.3)	2.0-7.5 (0.6-2.3)
11	2.6-12 (0.8-3.7)	2.0-11 (0.6-3.3)	2.0-9.2 (0.6-2.8)	2.0-7.5 (0.6-2.3)	2.0-5.2 (0.6-1.6)
16	2.6-8.5 (0.8-2.6)	2.0-7.5 (0.6-2.3)	2.0-6.6 (0.6-2.0)	2.0-5.2 (0.6-1.6)	2.0-3.6 (0.6-1.1)
22	2.6-5.9 (0.8-1.8)	2.0-5.2 (0.6-1.6)	2.0-4.6 (0.6-1.4)	2.0-3.6 (0.6-1.1)	2.0-2.6 (0.6-0.8)

### Auto Shooting Range: in feet (meters)

Zoom Head Setting	Shooting Mode	Shooting Range	
T	A1	2.6-17	(0.8-5.2)
	A2	2.6-33	(0.8-1.0)
S	A1	2.0-15	(0.6-4.7)
	A2	2.0-31	(0.6-9.5)
N	A1	2.0-13	(0.6-4.0)
	A2	2.0-26	(0.6-8.0)
W1	A1	2.0-11	(0.6-3.3)
	A2	2.0-22	(0.6-6.7)
W2*	A1	2.0-7.5	(0.6-2.3)
	A2	2.0-15	(0.6-4.7)

# Nikon Speedlight SB-14



- Compact handle-mount flash unit.
- Uses fast cycling external power pack.
- Permits auto-flash photography with all Nikon cameras.
- Features rotating and tilting flash head.
- Provides wide coverage, to 24mm lens field with supplied diffuser.
- Accessory connecting cords allow TTL flash metering with Nikon F3 and dedicated (but non-TTL) operation with other Nikon cameras.

The Nikon Speedlight SB-14 is an extremely compact handle-mount unit that offers high power output. It features a tilting and rotating head for bounce flash versatility, and provides auto-flash exposure control with a choice of three aperture settings.

With the optional Extension Cord SC-13, the SB-14's removable flash sensor can be attached to a camera's hot shoe, maintaining correct automatic exposures regardless of what direction the flash is pointed. Additionally, the SC-13 cord incorporates a special electrical contact that provides dedicated camera operation. It enables automatic shutter programming and activation of the LED flash ready-light with the Nikon FE, FG or EM. Only the ready-light function is possible with the mechanical FM2 camera.

At the "S" (Slave) position on the removable SU-2 sensor module, the Speedlight SB-14 emits a modulated burst of light which can trigger a second flash unit attached to the Nikon Modulite Control Unit ML-1.

When attached to the Nikon F3 with the optional TTL Sensor Cord SC-12, the Speedlight SB-14 offers the advantage of through-the-lens flash metering. Plus, a blinking LED assures that there are no missed shots due to an incorrect exposure or improper flash connection, in both automatic and TTL modes.

The SB-14 can illuminate a 28mm lens field without vignetting, and, with the supplied wide angle diffuser attached, cover a 24mm wide angle lens. It also features two PC terminals which can be used to wire additional flash units.

The Nikon Speedlight SB-14 requires an external power supply, Battery Pack SD-7. This power pack uses six C-type batteries and yields about 270 flashes.

## Technical Specifications: Nikon Speedlight SB-14

**Type:** Handle mount

**Light Output Control:** Automatic TTL control with F3 via TTL Sensor Cord SC-12; automatic via Sensor Unit SU-2 (SPD) with other cameras; Full manual control

**Guide Number (ASA/ISO 100 (ft.)):** 105 (72 with Wide Flash Adapter SW-5)

**Angle of Coverage (Horiz. x Vertical):** 67° x 48° (28mm lens); with Wide Flash Adapter 77° x 56° (24mm lens)

**Automatic Shooting Range (ASA 100):** TTL via SC-12 cord, 2-53 ft. (0.6-16m); three auto f/stops with SU-2: f4, 2-26 ft. (0.6-8m); f5.6, 2-18 ft. (0.6-5.6m); f8, 2.0-13.1 ft. (0.6-4m)

**Recycling Time\*:** Up to 9.5 sec.

**Number of Flashes:** Alkaline batteries, 270; Zinc-Carbon

batteries, 80; NiCad batteries, 100

**Power Source:** Accessory Battery Pack SD-7, 6-1.5V C-type batteries

**Dimensions:** 8.5 x 3.7 x 3.6 in. (217 x 94 x 91mm)

**Weight:** 18.2 oz. (515g); mounting bracket: 10.2 oz. (290g)

**Other:** Flash head tilts up to 120°; rotates up to 240°, LED blinks for insufficient exposure warning or improper connection; dual sync terminals

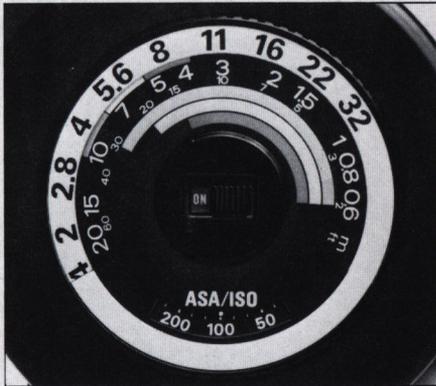
**Accessories:** SU-2 Sensor, SK-5 Bracket, SC-11 Sync Cord and SW-5 Wide-Flash Adapter supplied; SD-7 Battery Pack; TTL Sensor Cord SC-12; Extension Cord SC-13

**Product Number:** 4514; 4525/SB-14 with SD-7

\*with fresh alkaline batteries

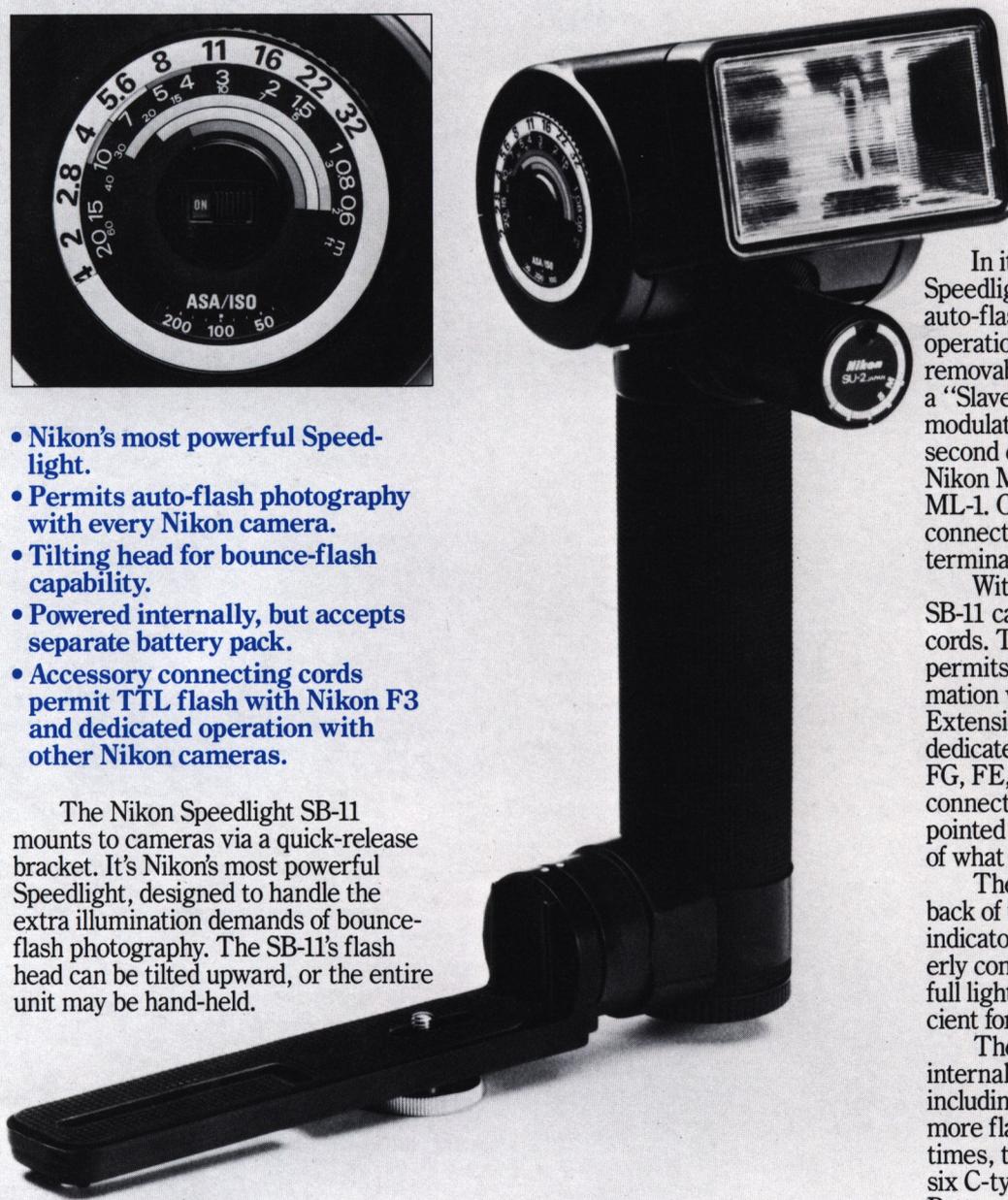
Specifications subject to change without notice

# Nikon Speedlight SB-11



- Nikon's most powerful Speedlight.
- Permits auto-flash photography with every Nikon camera.
- Tilting head for bounce-flash capability.
- Powered internally, but accepts separate battery pack.
- Accessory connecting cords permit TTL flash with Nikon F3 and dedicated operation with other Nikon cameras.

The Nikon Speedlight SB-11 mounts to cameras via a quick-release bracket. It's Nikon's most powerful Speedlight, designed to handle the extra illumination demands of bounce-flash photography. The SB-11's flash head can be tilted upward, or the entire unit may be hand-held.



In its standard configuration, the Speedlight SB-11 offers three different auto-flash settings plus full manual operation. Additionally, the unit's removable SU-2 sensor incorporates a "Slave" setting which provides for a modulated burst of light to trigger a second electronic flash attached to the Nikon Modulate Remote Control Unit ML-1. Other flash units may also be connected to the SB-11's second sync terminal.

With the sensor removed the SB-11 can accept accessory connecting cords. The TTL Sensor Cord SC-12 permits through-the-lens flash automation with the Nikon F3, and the Extension Cord SC-13 provides dedicated operation with the Nikon FG, FE, FM2 and EM cameras. Either connecting cord keeps the sensor pointed towards the subject, regardless of what direction the flash is pointed.

The LED flash ready-light on the back of the SB-11 doubles as a warning indicator. It blinks if the unit is improperly connected to the camera or if the full light output may have been insufficient for a correct exposure.

The Speedlight SB-11 is powered internally by eight AA-type batteries, including rechargeable NiCads. For more flashes and faster recycling times, the SB-11 can be connected to six C-type batteries in Nikon's SD-7 Battery Pack.

## Technical Specifications: Nikon Speedlight SB-15

**Type:** Handle mount

**Light Output Control:** Automatic TTL control with F3 via TTL Sensor Cord SC-12; automatic via Sensor Unit SU-2 (SPD) with other cameras; Full manual control

**Guide Number (ASA/ISO 100 (ft.)):** 118 (82 with Wide Flash Adapter SW-3)

**Angle of Coverage (Horiz. x Vertical):** 56° x 40° (35mm lens); with Wide Flash Adapter 67° x 48° (28mm lens)

**Automatic Shooting Range (ASA 100):** TTL via SC-12 cord, 3.3-59 ft. (1-18m); three auto f/stops with SU-2: f4, 2-30 ft. (0.6-9m); f5.6, 2-21 ft. (0.6-6.4m); f8, 2-15 ft. (0.6-4.5m)

**Recycling Time\*:** Up to 8 sec.

**Number of Flashes:** Alkaline batteries, 150; NiCad batteries, 60

**Power Source:** 8-1.5V AA-type batteries or SD-7 Battery Pack with 6-1.5V C-type batteries

**Dimensions:** 10.9 x 4.1 x 4.6 in. (276 x 104 x 118mm)

**Weight:** 30.3 oz. (860g)

**Other:** Flash head tilts 120°; LED blinks for insufficient exposure warning or improper connection; dual sync terminals

**Accessories:** SU-2 Sensor, SK-4 Bracket, SC-11 Sync Cord and SW-3 Wide Flash Adapter supplied; SD-7 Battery Pack; TTL Sensor Cord SC-12; Extension Cord SC-13

**Product Number:** 311

\*with fresh alkaline batteries

Specifications subject to change without notice

# Nikon Speedlight SB-12



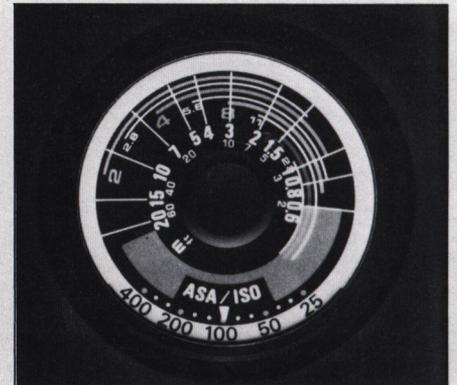
- Designed for exclusive use with the Nikon F3.
- Provides TTL flash automation with the Nikon F3.
- Compact and lightweight for easy portability.
- Accessory cord permits off-camera use.
- Off-the-film-plane light measurement for automatic compensation and increased exposure precision.

The Nikon Speedlight SB-12, designed exclusively for the F3 camera, provides completely automatic through-the-lens (TTL) metering of flash exposure. The F3's built-in

metering cell measures the illumination directly off the film plane. This metering method automatically matches the flash's metering field to the lens in use, while providing automatic compensation for exposure increases required in close-up photography, when bouncing the light, or when filters are added to the lens or flash. Additionally, photographers can set any lens aperture (depending on subject distance) from f2 to f22 for maximum control over depth of field and recycling time.

When attached to the F3's special hot shoe and switched on, the Speedlight SB-12 programs the shutter to the correct X-sync speed (1/80 sec.), activates the viewfinder LED flash ready-light and exchanges exposure data with the camera's microprocessor circuits. For synchro-sunlight photography, the camera's shutter speed dial may be switched from AUTO to a manual shutter speed, and TTL flash metering is still maintained at speeds of 1/80 sec. or slower.

If the flash output may have been insufficient for a correct exposure, or if the unit was incorrectly mounted, the



LED flash ready-light blinks as a warning. The LED will also blink if the ASA has been set outside the flash unit's range. To fine tune flash exposures for maximum creative control, the F3's exposure compensation dial can be set to bias the meter reading by up to  $\pm 2$  stops.

The accessory TTL Sensor Cord SC-14 permits off-camera flash usage with full TTL metering capability. Flash unit coupler AS-6 can be used to mount the Speedlight SB-12 on any standard hot shoe for manual flash operation. The SB-12 is supplied with a wide angle diffuser and soft case.

## Technical Specifications: Nikon Speedlight SB-12

**Type:** Special F3 hot shoe mount

**Light Output Control:** Automatic TTL control with F3 cameras; Full manual control

**Guide Number (ASA/ISO 100 (ft.)):** 82 (59 with Wide Flash Adapter SW-4)

**Angle of Coverage (Horiz. x Vertical):** 56° x 40° (35mm lens); with Wide Flash Adapter 67° x 48° (28mm lens)

**Automatic Shooting Range (ASA 100):** TTL, 2-39 ft. (0.6-12m)

**Recycling Time\*:** Up to 8 sec.

**Number of Flashes:** Alkaline batteries, 160; Zinc-Carbon

batteries, 60; NiCad batteries, 60

**Power Source:** 4-1.5V AA-type batteries

**Dimensions:** 1.6 x 4.1 x 3.3 in. (40 x 105 x 85mm)

**Weight:** 12.3 oz. (350g)

**Other:** Flash head rotates 180°; LED blinks for insufficient exposure warning or improper connection

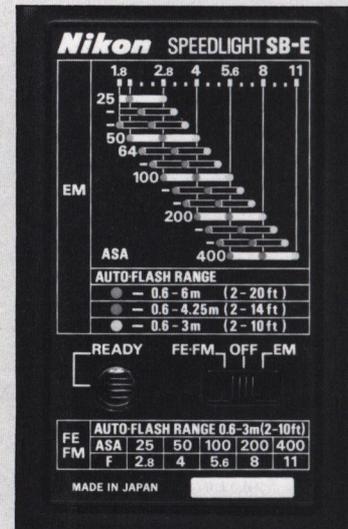
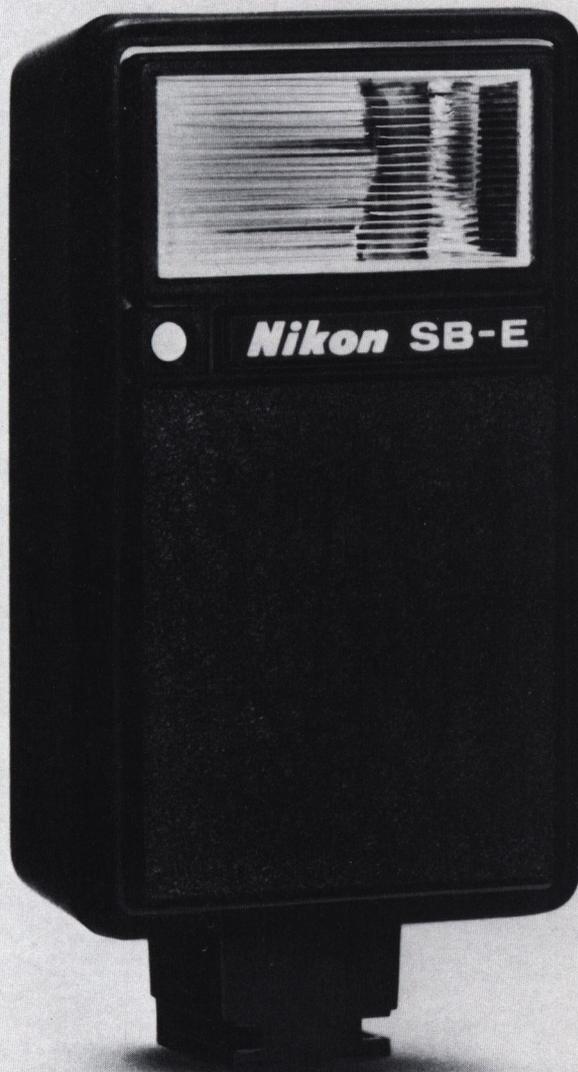
**Accessories:** Wide Flash Adapter SW-4, case supplied; TTL Cord SC-14; Flash Unit Coupler AS-6

**Product Number:** 312

\*with fresh alkaline batteries

Specifications subject to change without notice

# Nikon Speedlight SB-E



The Nikon Speedlight SB-E is compatible with all Nikon cameras, but operates to its fullest potential when attached to the Nikon EM. The Speedlight SB-E receives exposure data directly from the EM camera so there's nothing to set. It programs the camera's shutter to the correct X-sync speed and activates the LED flash ready-light in the viewfinder. The SB-E even knows at what aperture the Nikon lens has been set, and warns the user with a blinking LED if the setting is out of flash range.

The Speedlight SB-E offers up to three auto-flash settings for use with the Nikon EM and provides automatic exposures from 2 to 20 feet. With other Nikon cameras, an aperture setting guide on the back of the SB-E indicates the correct lens opening for various film speeds. Full dedicated functions are possible with compatible cameras. With thyristor circuitry for fast recycling and power conservation, the SB-E will deliver over 80 flashes in the automatic mode per set of four AAA-type alkaline batteries.

- Gives EM owners the utmost in flash automation.
- Virtually mistake-proof, nothing to set with multi-function LED safeguards.
- Provides three auto-flash aperture settings with Nikon EM.
- Thyristor circuitry for extra-fast recycling.
- Nikon's most compact Speedlight.
- Permits dedicated operation with other Nikon cameras.

## Technical Specifications: Nikon Speedlight SB-E

**Type:** Hot shoe mount

**Light Output Control:** Automatic via front-mounted light sensor

**Guide Number (ASA/ISO 100 (ft.):** 56

**Angle of Coverage (Horiz. x Vertical):** 56° x 40° (35mm lens)

**Automatic Shooting Range (ASA 100):** With EM, three auto f/stops: f2.8, 2-20 ft. (0.6-6m); f4, 2-10 ft. (0.6-4.2m); f5.6, 2-10ft. (0.6-3m)

**Recycling Time\*:** Up to 9 sec.

**Number of Flashes:** Alkaline batteries, 80

**Power Source:** 4-1.5V AAA-type batteries

**Dimensions:** 4.3 x 2.2 x 1.3 in. (110 x 55 x 33mm)

**Weight:** 4.6 oz. (130g)

**Other:** Dedicated operation with Nikon cameras

**Accessories:** Soft case supplied

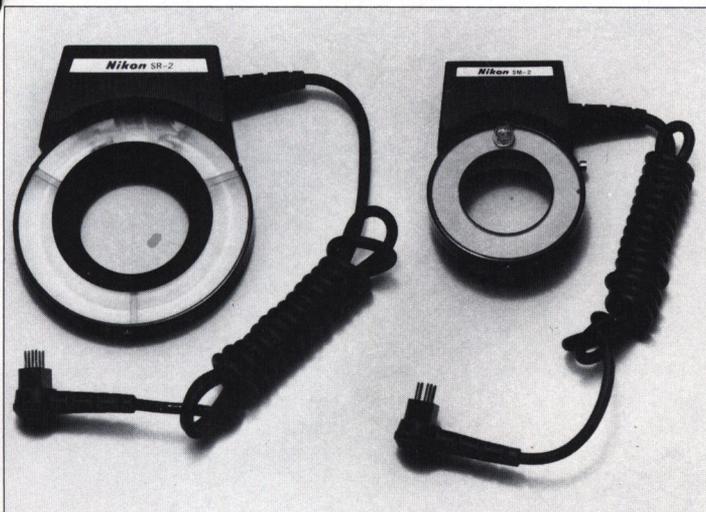
**Product Number:** 284

\*with fresh alkaline batteries

Specifications subject to change without notice

# Nikon Special Purpose Flash Units

## Technical Specifications: Nikon Ringlight SR-2/SM-2

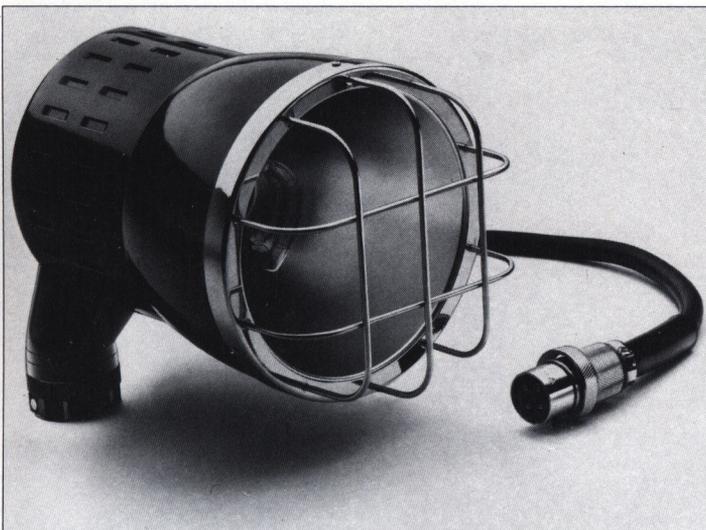


### Nikon Ringlights SR-2 and SM-2

Nikon ringlights are particularly useful in close-up photographic applications, bathing the subject in a circle of even, shadowless illumination. The SR-2 screws directly onto the 52mm front thread of a Nikon lens for flash photography at distances from about 6 to 18 inches from the film plane at 1/4 power to nearly 10 feet at full power. The Nikon Ringlight SM-2 attaches to the bayonet mount of a reverse-mounted Nikon lens and provides optimum performance at life-size (1:1) or greater magnifications. Additionally, the SM-2 has a built-in focusing lamp to facilitate precise focusing of highly magnified subjects. Both ringlights accept either AC or DC power packs (see next page for complete information).

Type:	SR-2	SM-2
Attachment:	Front (52mm) lens mount	Reverse lens bayonet mount
Manual Light Output Control:	Full and 1/4 power output	Full and 1/4 power output
Guide Number: ASA/ISO 100 (ft.)	52 (full), 26 (1/4)	Not ratable at macro distances
Angle of Coverage: (Horiz. x Vertical)	65°	—
Recycling Time*	Up to 12 sec.	Up to 12 sec.
Number of Flashes: (Alkaline batteries)	600 (full), 1400 (1/4)	600 (full), 1400 (1/4)
Power Source:	DC unit LD-1 AC unit LA-1	DC unit LD-1 AC unit LA-1
Dimensions:	4.2 x 5.5 x 1 in. (106 x 140 x 25mm)	2.8 x 3.9 x 1.4 in. (70 x 100 x 35mm)
Weight:	7.1 oz. (200g)	6.5 oz. (185g)
Accessories:	AC Power Unit LA-1, DC Power Unit LD-1	AC Power Unit LA-1, DC Power Unit LD-1
Product Number:	342	343

\*With fresh alkaline batteries



### Nikon Repeating Flash SB-6

The SB-6 Repeating Flash recycles instantly for numerous flash exposures over a short period of time—from 5 to 40 flashes per second depending on the power ratio set. Its unique design permits stroboscopic operation for creative or scientific applications. And, it can be used in synchronization with a motor drive at up to 3.8 frames-per-second. The SB-6 is powered by either AC or DC power packs.

## Technical Specifications: Nikon Repeating Flash SB-6

**Type:** Special hot shoe mount  
**Light Output Control:** Automatic via Sensor Unit SU-1 and Extension Cord SC-9; Manual full to 1/32 power output  
**Guide Number (ASA/ISO 100 (ft.)):** 147 (full), 104 (1/2), 72 (1/4), 52 (1/8), 36 (1/16), 26 (1/32)  
**Angle of Coverage (Horiz. x Vertical):** 56° x 40° (35mm lens)  
**Automatic Shooting Range (ASA 100):** At full, three auto f/stops, 3.3-36 ft. (1-11m)  
**Power Source:** DC unit SD-5, AC unit SA-3  
**Dimensions:** 5 x 7.5 in. (128 x 190mm)  
**Weight:** 2 lb. 6 oz. (1100g)  
**Accessories:** AC Power Unit SA-3, Connecting Cord MC-9, DC Power Unit SD-5, NiCad Battery SN-3, NiCad Battery Charger SH-3  
**Product Number:** 290

Specifications subject to change without notice.

# Nikon Speedlight Accessories



## Nikon Flash Unit Couplers

Nikon Flash Unit Couplers permit mounting compatibility of all Speedlight units with all Nikon cameras. *AS-3 Flash Coupler* permits the use of F2 hot shoe mount units such as the Speedlight SB-7E on the Nikon F3. *AS-4 Flash Coupler* permits cordless mounting ISO-type hot shoe flash units such as the SB-15 on the Nikon F3. The AS-4 can activate all dedicated functions except TTL flash control. *AS-5 Flash Coupler* permits mounting the Speedlight SB-12 on Nikon F2 cameras. *AS-6 Flash Coupler* permits mounting the Speedlight SB-12 on Nikon cameras with ISO-type hot shoes such as the FM2, FE, FG, etc.

**Note:** Flash Unit Couplers AS-1 and AS-2 are for use with Nikon F2 cameras and F2 Speedlight accessories. AS-1 adapts ISO-type hot shoe flash units to F2; AS-2 permits special F2 flash units to be mounted on a standard hot shoe.

**Product Number:** AS-1/362; AS-2/363; AS-3/353; AS-4/354; AS-5/3059; AS-6/3060



## Nikon Connecting Cords

Nikon connecting cords extend the versatility and function of Speedlight units. *The Sensor Remote Cord SC-13* allows automatic operation of the SB-11 and SB-14 at a distance of up to 3.3 feet from the camera. It also enables the use of these flash units with the Nikon FG and EM cameras, which do not have a PC Terminal. The SU-2 remote sensor unit is plugged into the SC-13's sensor socket and then mounted on an ISO-type hot shoe. An extra electrical contact provides for dedicated camera functions. *TTL Sensor Cord SC-12* enables automatic through-the-lens flash metering with the Nikon F3 and Speedlight SB-11 or SB-14. *TTL Sensor Cord SC-14* permits off-camera use of the Speedlight SB-12, while maintaining TTL flash metering capability with the Nikon F3. The SC-12 and SC-13 TTL sensor cords are 3.3 feet long.

**Product Number:** SC-12/356; SC-13/313; SC-14/3061



## Nikon Battery Pack SD-7

Nikon Battery Pack SD-7 is required as a power source for the Speedlight SB-14, but may also be used with the SB-11. It accepts six C-type batteries which provide power for more than 270 flashes on automatic.

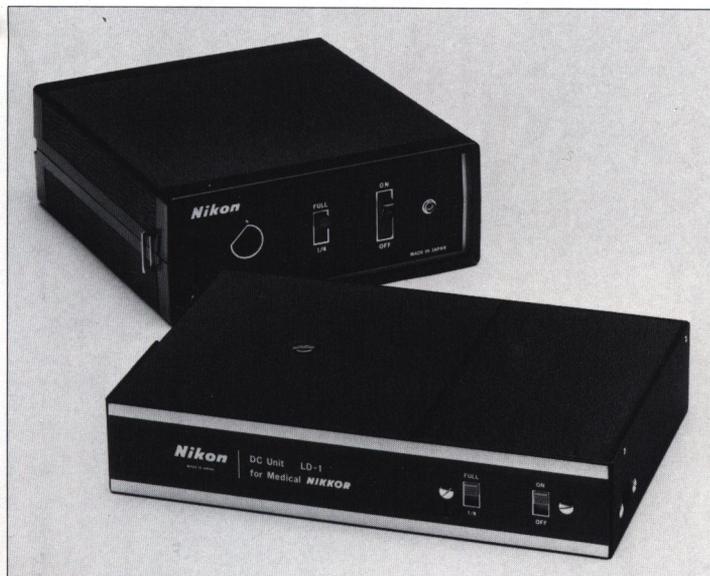
**Product Number:** 4520 (Use Product Number 4525 when ordered as a combination package with the Speedlight SB-14.)

# Nikon Speedlight Accessories

## Nikon Power Packs

Nikon Power Packs LA-1 and LD-1 are external power supplies for the Ringlight SR-2, SM-2 and the 200mm f5.6 Medical-Nikkor lens. *AC Unit LA-1* is powered by standard household electrical current for a limitless number of flashes. *DC Unit LD-1* accepts eight D-type batteries and can provide 600 flashes at full power output.

**Product Number: LA-1/374; LD-1/373**



## Camera/Flash Combinations

Speedlight	F3	FE	FM/FM2	FG	EM
<b>SB-15</b> TTL: Auto:	— w/AS-4 Flash Unit Coupler	— direct	— direct	direct direct	— direct
<b>SB-12</b> TTL: Manual:	direct and with TTL Sensor Cord SC-14 when selector set at "M" position	— manual only with AS-6 Flash Unit Coupler	— manual only with AS-6 Flash Unit Coupler	— manual only with AS-6 Flash Unit Coupler	— manual only with AS-6 Flash Unit Coupler
<b>SB-11</b> TTL: Auto:	w/TTL Sensor Cord SC-12 w/supplied SC-11 Sync Cord or Extension Cord SC-13 and AS-4	— w/supplied SC-11 Sync Cord or Extension Cord SC-13	— w/supplied SC-11 Sync Cord or Extension Cord SC-13	— w/Extension Cord SC-13	— w/Extension Cord SC-13
<b>SB-14</b> TTL: Auto:	w/TTL Sensor Cord SC-12 w/supplied SC-11 Sync Cord or Extension Cord SC-13 and AS-4	— w/supplied SC-11 Sync Cord or Extension Cord SC-13	— w/supplied SC-11 Sync Cord or Extension Cord SC-13	— w/Extension Cord SC-13	— w/Extension Cord SC-13
<b>SB-E</b> Auto:	w/AS-4 Flash Unit Coupler	direct	direct	direct	direct
<b>SB-6</b> Auto:	w/AS-3 Flash Unit Coupler and Extension Cord SC-9	w/AS-2 Flash Unit Coupler and Extension Cord SC-9	w/AS-2 Flash Unit Coupler and Extension Cord SC-9	w/AS-2 Flash Unit Coupler and Extension Cord SC-9	w/AS-2 Flash Unit Coupler and Extension Cord SC-9
<b>SR-2/SM-2</b>	w/built-in sync cord	w/built-in sync cord	w/built-in sync cord	—	—

Specifications subject to change without notice.

Nikon Sports & Compact Binoculars  
Nikon E Series, Standard &  
Wide Field Binoculars  
Nikon Roof Prism Binoculars  
Nikon Rubber Coated Binoculars  
Nikon Spotting Scope & Monocular  
Nikon Binocular Telescopes



# Nikon Binoculars

Every product that carries the Nikon name is unsurpassed in terms of construction, quality and overall performance. Nikon binoculars are no exception. For over six decades, Nikon has applied its expertise to the design and production of high-quality binoculars which incorporate optical innovations to reduce the size and weight of prism binoculars while increasing their sharpness and brilliance. To see the difference Nikon binoculars make, all you have to do is pick them up and take a look through them.

Today, Nikon offers a wide variety and range of binocular models, each one characterized by exceptional resolution and light-gathering power. There are Nikon binoculars for fun and pleasure and those for professional use as well as special heavy-duty applications. All-weather binocular models stand up against harsh conditions, while the lightweight and compact models have become a favorite

companion of backpackers, theatergoers and sports spectators. The chart below can help guide you in the best choice for your main activities.

## Unexcelled Nikon Optics

As with Nikon lenses, the essential component in Nikon binoculars is optical glass. For binoculars too, Nikon creates its own optical glass, grinds and polishes, and then hard coats each lens. The carefully designed and matched optical components are then precisely aligned and collimated for true parallelism of both barrels, which is essential for comfortable strain-free viewing. The end result is maximum clarity and brightness.

## Precision Mechanical Assembly

To manufacture the best quality binoculars, Nikon insists on optimum

quality materials as well as careful assembly and strict quality control supervision. Selected, lightweight metal alloys are used for the binocular housings for strength and rugged durability. The lenses are precision mounted to assure accurate alignment. Metal brackets and accurately machined fittings are used to locate the prisms, permanently. And, the moving parts are machined to precise tolerances for smooth, silent mechanical adjustments when focusing or adjusting each ocular. Then it's carefully sealed to protect the optics from moisture, dust and corrosion during the binoculars long service life.

For additional technical information on Nikon binoculars, consult the product specifications on pages 8 and 9 of this section.

**NOTE:** Most Nikon binocular models are now eligible for a new, 25-year limited warranty coverage. Ask your Nikon sales representative for complete details.

Application Table

	3.5 x Sports	6 x 15 Mono	6 x 20DCF	7 x 20DCF	7 x 20CF	7 x 35CF	7 x 50IF	7 x 50IF Tropical	7 x 50IF w/Scale	8 x 20DCF	8 x 23CF	8 x 30CF	8 x 30DIF Rubber	9 x 25 CF	9 x 30DCF	10 x 25CF	10 x 35CF	10 x 70IF	12 x 36DCF	12 x 40CF	15 x 80	20 x 120	Spotting Scope
Theater, Stage	•	•	•	•	•					•	•		•	•	•								
Indoor Sports	•	•	•	•	•	•				•	•	•	•	•	•	•			•	•			
Outdoor Sports			•	•	•	•				•	•	•	•	•	•	•			•	•			
Travel		•	•	•	•					•	•	•	•	•	•	•			•	•			
Driving		•	•	•	•	•				•	•	•	•	•	•	•			•	•			•
Hiking, Mountaineering			•	•	•					•	•	•	•	•	•	•			•	•			•
Camping			•	•	•	•				•	•	•	•	•	•	•			•	•			•
Horse Racing														•	•	•			•	•			•
Bird-Watching					•	•					•			•	•	•			•	•			•
Astronomy							•	•	•									•					
Hunting					•						•	•				•			•	•			•
Fishing, Boating, Yachting							•	•				•						•		•	•	•	•
Surveillance					•	•	•	•			•	•				•	•	•	•	•	•	•	•
Night Use					•	•	•	•								•	•	•	•	•	•	•	•
Gift	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Specifications and designs shown herein are subject to change without notice.

# Nikon Binoculars



## Nikon 3.5X Sports Glass

The Nikon Sports Glass is extremely compact and lightweight, measuring only 2-1/2 x 4-1/4 inches and a mere 5.6 ounces. It offers 3.5X magnification, ideal for viewing an entire sports playing field, gymnasium court or theater stage. Attractively styled, the Sports Glass features a sculpted, easy-to-hold body with large ribbed central focusing knob for fumble-free operation. Its coated lenses incorporate shielded objective elements, that are covered by glass for protection against the elements. Sharp resolution is guaranteed right out to the very corners of the field. Supplied with neckstrap and zippered case.

**Product Number: 7706**

## Nikon Compact Binoculars

**9 x 25 CF**  
**8 x 23 CF**  
**10 x 25 CF**

Nikon compact binoculars provide a choice of 8X, 9X or 10X magnifications. They're designed with sweeping contour lines and a handsome finish so they're as good to look at as they are to look through. Besides being quite compact, they're very lightweight and can be brought along everywhere—sporting events or other recreational activities. They feature quick central

focusing with a diopter adjustment ring on the right eyepiece to accommodate individual eyesight. If eyeglasses are worn, the built-in folding rubber eyecups protect them from scratches. Their high-eyepoint optical design enables full field viewing, even when wearing eyeglasses. The lenses are coated for crisp images across the field of view. All compact binoculars are supplied with neckstrap and zippered case.

**Product Number: 7702/9 x 25 CF;**  
**7703/8 x 23 CF;**  
**7704/10 x 25 CF**

See page 8 for complete product specifications.

# Nikon Binoculars

## Nikon High-Performance E Series Binoculars

**7 x 35E  
8 x 30E  
10 x 35E**

Nikon E Series binoculars feature specially designed optics which provide for comfortable, full-field viewing at all times—even for those who wear eyeglasses and can't press them close against the eyepiece. They also feature folding rubber eyecups which afford maximum comfort as well as protection against scratching eyeglasses. These full-size instruments offer uncommon versatility, with high power, brilliance, and an extremely wide field of view for unexcelled performance in hunting, bird watching, all types of sports and numerous other outside activities. They incorporate large 30 and 35mm objective lenses for a bright clear image, even in limited light situations. Supplied with neckstrap and case.

**Product Number: 780/7 x 35E;  
782/8 x 30E;  
784/10 x 35E**

## Nikon Standard and Wide Field Binoculars

**7 x 50 Standard  
10 x 70-IF Wide Field  
12 x 40 Wide Field**

Nikon standard and wide field binoculars are designed for optimum performance under the most demanding conditions, for people who need the best binoculars in their professional work; navigators, fire lookouts, explorers, archeologists or anyone who needs maximum brightness in long-range applications. The 7 x 50 (also available in a rubber coated model) provides the brightest view of all Nikon binoculars, ideal for use in poor visibility or at night. The 10 x 70 Wide Field, with individual eyepiece focusing, provides an image virtually as bright as the 7 x 50's with 43% greater magnification. And, the relatively compact 12 x 40 Wide Field binoculars provide extra viewing power with the convenience of central focusing. All are ruggedly constructed for lifetime service. Supplied with hard carrying case and neckstrap.

**Product Number: 705/7 x 50;  
732/10 x 70  
735/12 x 40**

## Nikon Binoculars



### **Nikon Rubber Coated Binoculars** **8 x 30 IF (Roof Prism)** **7 x 50 IF** **7 x 50 IF with reticle**

These all-weather binoculars feature a rubber-clad housing for extra handling security as well as protection under damp, slippery conditions. All three models feature highly moisture resistant O-ring seals and construction to protect them against water spray (fresh or salt water) or high humidity environments. *Nikon rubber coated binoculars are water-resistant and should not be totally immersed.* The olive colored 8 x 30 roof prism binoculars feature individual focusing. All are well suited for boating, skiing, hunting, etc.—anywhere you wouldn't risk regular binoculars. The 7 x 50 models are widely selected for nautical and night viewing. A unique reticle in one model of the 7 x 50s projects a graduated scale in each eyepiece for convenient object/size distance reference. All feature coated lenses for sharp focus, right out to the edges of the field, and are ruggedly built for a lifetime of service. Supplied with rubber lids and neckstrap.

**Product Number: 777/8 x 30 IF;**  
**778/7 x 50 IF;**  
**779/7 x 50 IF with reticle**



### **Nikon Roof Prism Binoculars** **9 x 30** **12 x 36**

Roof prism binoculars employ the most modern approach to binocular design that allows for a much smaller physical size in relation to their magnification capability, with no loss of Nikon optical quality. Both models feature fast, fingertip central focusing with a diopter adjustment on the right eyepiece to accommodate individual eyesight requirements. In addition, they have soft folding rubber eyecups to exclude stray light and provide extra comfort and protection to eyeglass wearers. Available in 9X and 12X magnifications, Nikon roof prism binoculars are well suited to augment a wide variety of activities from watching birds to sporting activities. Supplied with case and neckstrap.

**Product Number: 711/9 x 30;**  
**714/12 x 36**

See page 8 for complete product specifications.

# Nikon Binoculars

## Nikon Spotting Scopes

These 20 x 60 special optics, designed for the outdoors, provide extremely high magnifications with excellent resolution and brilliance for long-range viewing in such applications as bird-watching or wildlife observation. They're tough and weather-resistant, and feature a large, knurled focusing ring that can be turned quickly and accurately, even with gloves on at low temperatures. The Spotting Scopes come with an interchangeable 20X magnification eyepiece. Optional 15X, 30X and 40X eyepieces are also available. A 35mm camera adapter transforms the scopes into super telephoto lenses, equivalent to 800mm f13.3, for photography. Other features include a standard tripod socket and high eye-point design for comfortable viewing, even for eyeglass wearers. A special ED model of the spotting scope is also available, which features Nikon's Extra-Low Dispersion glass for virtually aberration-free viewing. Supplied with soft carrying case and shoulder strap.

**Product Number: 7705/Scope with 20X eyepiece;**  
**7709/ED Scope with 20X eyepiece;**  
**7770/camera adapter;**  
**7772/15X eyepiece;**  
**7773/30X eyepiece;**  
**7774/40X eyepiece;**  
**7775/20X eyepiece replacement**

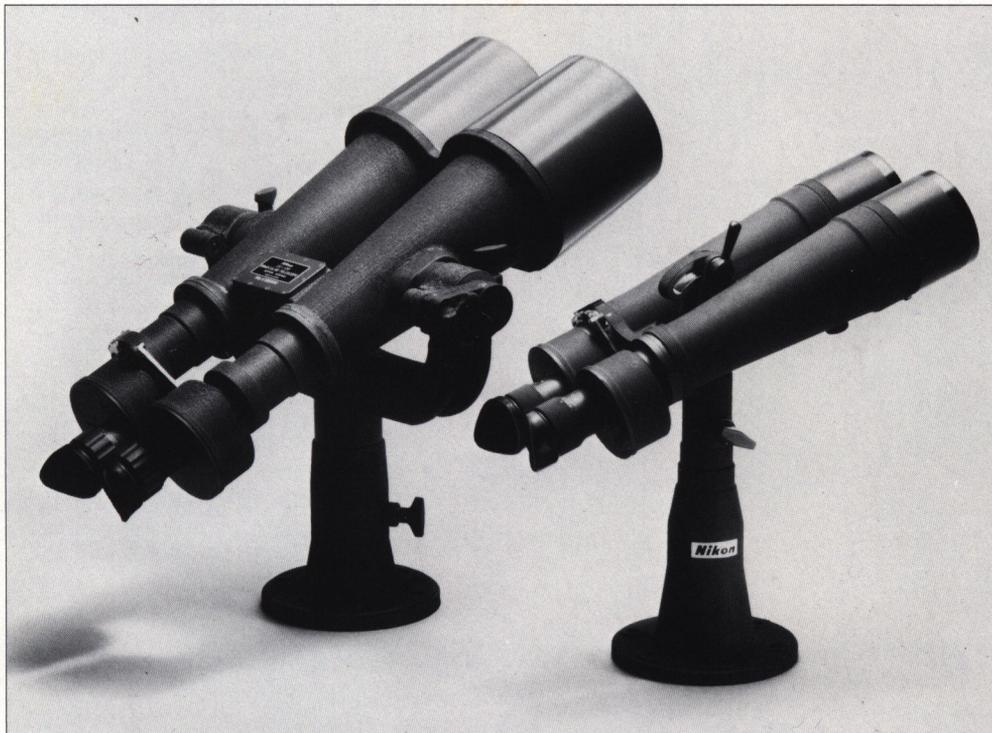
## Nikon Monocular Telescope 6 x 15

Lightweight and compact, the 6X Monocular can be held in the palm of the hand and carried almost anywhere for a close-up view of distant subjects. Employing the proven optics in Nikon compact roof prism binoculars, miniaturization was achieved without sacrificing excellent optical performance. The monocular weighs a mere 1.8 ounces and only measures 2.8 x 1.9 inches. Supplied with case; available in goldtone or silvertone finish.

**Product Number: 7710/gold;**  
**7711/silver**



# Nikon Binoculars



See page 8 for complete product specifications.

## Nikon Binocular Telescopes

**20 x 120**

**15 x 80**

Nikon Binocular Telescopes are designed to exacting specifications for critical long-distance observation in such applications as marine use and land surveying. They provide exceptional clarity and brightness even in dim light, thanks to large objective lenses. To adapt these binoculars for a long life in rugged environments, they incorporate special seals to keep dust, dirt and moisture out. Additionally, a dried-air compound is pumped into the housing to further inhibit penetration. Each binocular is mounted on a heavy-duty stand that resists shock and wind pressure, while making them easy to handle. These stands allow smooth sweeping movements for azimuth and elevation and may be locked at a specific setting. Nikon binocular telescopes allow easy viewing because precision collimation and alignment ensure perfect parallelism of their optical and mechanical axes. Supplied with mounting stand and wooden case.

**Product Number: 715/20 x 120;  
720/15 x 80**

## Nikon Binocular Accessories

### Monopod

Lightweight and collapsible monopod has standard tripod screw thread for use with Spotting Scope as well as Nikon cameras. Opens to 60 inches.

**Product Number: 733**

### Monopod Adapter

Special adapter permits using 10 x 70 Wide Field binoculars with monopod.

**Product Number: 734**

### Replacement Cases, Straps, Eyecups, Eyepiece Caps and Objective Caps

Consult your price list for appropriate model and product number.

### Lens Hood Model II

For use with Spotting Scope; provides added protection for front element while minimizing effect from strong side light.

**Product Number: 7783**

### Shallow Eyecups

Special shallow-designed eyecups permit closest access for eyeglass wearers; soft rubber construction.

**Product Number: 718/for 7 x 35,  
8 x 30 and 9 x 35;  
719/for 7 x 50**

## Glossary

### Magnification

The ratio of how much an object is magnified in comparison with the naked eye.

### Objective Diameter

The objective lens diameter (the objective lens is the front lens). The larger the objective diameter, the greater its resolution and the brighter its image, but correspondingly, the binocular itself becomes larger and heavier.

### Angular Field of View

The field of view measured by degrees. The real field of view is a measured angle of the visible field from the central point of the two objectives. The apparent field of view is how wide an angle is totally visible. The apparent field of view is arrived at by multiplying the real field of view by the magnification of the binocular. The binocular with an apparent field of view beyond 65° is a wide field-of-view type. This type is designed to protect against the narrowness of the actual field of view by a high magnification.

### Field of View at 1000 yds.

The visible width of a scene viewed from 1000 yards distance.

### Exit Pupil

The bright circle you can see just behind the eyepiece by holding the binocular about 1 foot (30cm) from your eyes with the objective pointed toward a bright light. To get the diameter of the exit pupil, divide the objective diameter by the magnification.

### Relative Brightness

The brightness of an image through the binocular. It is obtained by squaring the diameter of a binocular's exit pupil. The greater the relative brightness, the brighter an image.

### Eye Relief

The distance between the eyepiece and the eyepoint. Viewers who wear eyeglasses can easily set their eyes to the eye relief by folding back the collapsible rubber eyecup provided with the eyepiece. The rubber eyecup is standard on all high-eyepoint type binoculars.

### Central Focusing

This system gives you a central wheel so you can focus by a single operation. It's especially useful when following fast-paced action.

### Individual Focusing

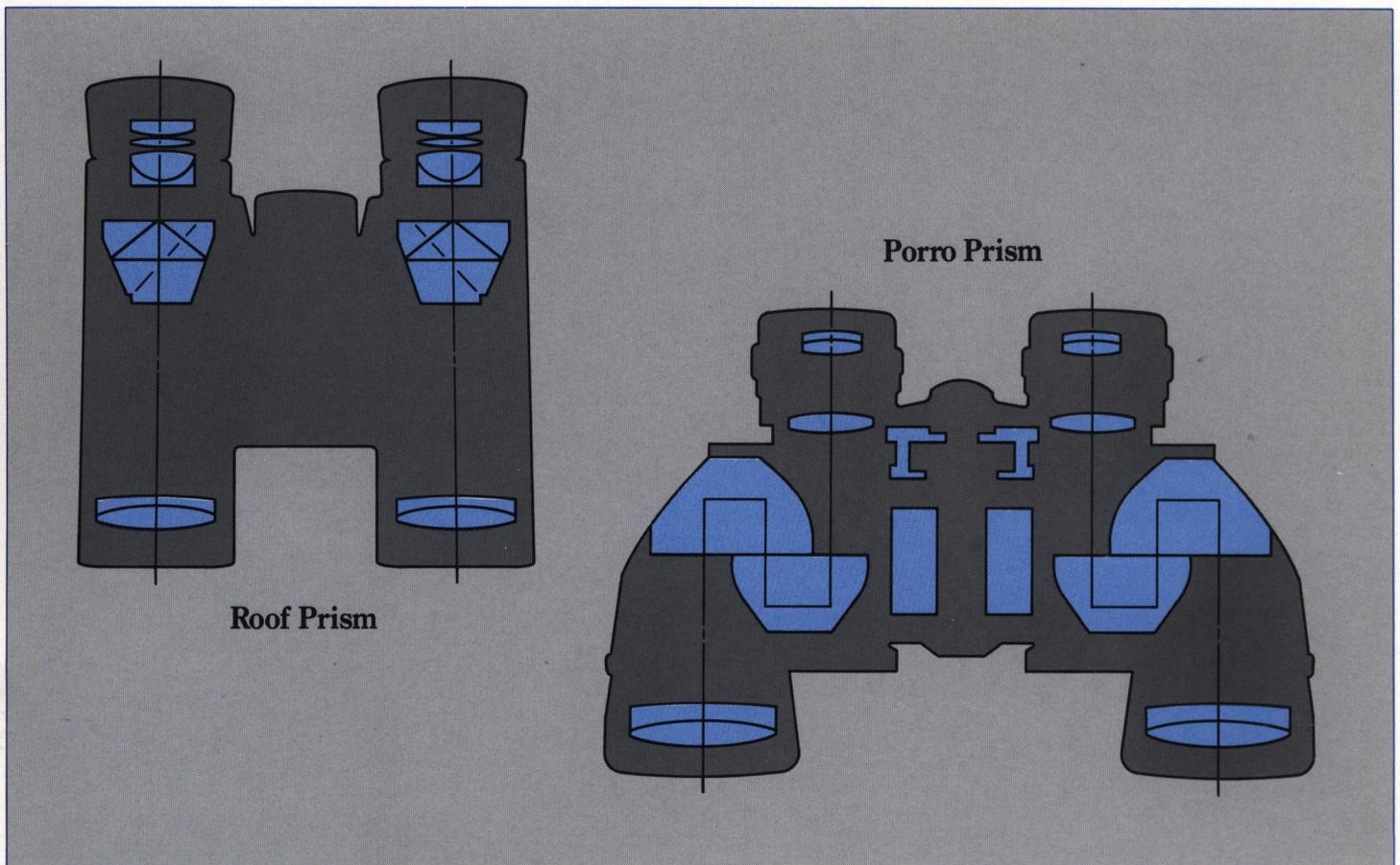
This system lets you adjust each eyepiece to focus independently. The simple construction provides better protection against dust and spray, and therefore is a feature of water-resistant binoculars.

### Roof Prism

This modern approach to binocular design allows for smaller physical size. As you can see from the diagram, the light rays are folded in a more compact way. The result a slim profile with excellent viewing comfort.

### Porro Prism

This traditional binocular design permits great performance and durability at reasonable cost. The Nikon engineering of this binocular style is unsurpassed. Unless otherwise specified as Roof Prism type, Nikon binoculars are of the Porro Prism design.



# Nikon Binoculars

## Technical Specifications: Nikon Binoculars

	3.5X Sports	9x25CF	8x23CF	10x25CF	7x35E	8x30E	10x35E
<b>Focusing System:</b>	Central	Central	Central	Central	Central	Central	Central
<b>Magnification:</b>	3.5X	9X	8X	10X	7X	8X	10X
<b>Objective Diameter:</b>	27mm	25mm	23mm	25mm	35mm	30mm	35mm
<b>Angular Field of View:</b>							
<b>Real</b>	—	5.6°	6.3°	5°	7.3°	8.3°	6.6°
<b>Apparent</b>	—	50°	50°	50°	51.1°	66.4°	66°
<b>Field of View at 1000 yd.:</b>	—	294 ft.	331 ft.	263 ft.	383 ft.	436 ft.	347 ft.
<b>Exit Pupil:</b>	—	2.8mm	2.9mm	2.5mm	5mm	3.8mm	3.5mm
<b>Relative Brightness:</b>	—	7.8	8.4	6.25	25	14.4	12.3
<b>Eye Relief:</b>	—	10.6mm	10.6mm	11mm	16.1mm	13.0mm	12.4mm
<b>Size: (L x W)</b>	2.5 x 4.25 in. (63 x 108mm)	4.3 x 4.5 in. (110 x 114mm)	4.2 x 4.1 in. (106 x 105mm)	4.7 x 4.1 in. (119 x 105mm)	4.7 x 7.1 in. (120 x 180mm)	3.9 x 7 in. (101 x 179mm)	4.6 x 7.1 in. (117 x 180mm)
<b>Weight:</b>	5.6 oz. (160g)	11.8 oz. (335g)	12 oz. (340g)	14.6 oz. (415g)	19.75 oz. (560g)	18.3 oz. (520g)	20.1 oz. (570g)
<b>Product Number:</b>	<b>7706</b>	<b>7702</b>	<b>7703</b>	<b>7704</b>	<b>780</b>	<b>782</b>	<b>784</b>

	7x50	10x70IF	12x40	9x30	12x36	8x30IF Rubber Coated	7x50IF* Rubber Coated
<b>Focusing System:</b>	Central	Individual	Central	Central	Central	Central	Individual
<b>Magnification:</b>	7X	10X	12X	9X	12X	8X	7X
<b>Objective Diameter:</b>	50mm	70mm	40mm	30mm	36mm	30mm	50mm
<b>Angular Field of View:</b>							
<b>Real</b>	7.3°	6.5°	5.5°	6.7°	5°	7.5°	7.3°
<b>Apparent</b>	51.1°	65°	66°	60.3°	60°	60°	51.1°
<b>Field of View at 1000 yd.:</b>	383 ft.	341 ft.	289 ft.	352 ft.	263 ft.	394 ft.	383 ft.
<b>Exit Pupil:</b>	7.1mm	7mm	3.3mm	3.3mm	3mm	3.8mm	7.1mm
<b>Relative Brightness:</b>	50.4	49	10.9	10.9	9	14.4	50.4
<b>Eye Relief:</b>	15mm	19.2mm	10.8mm	11.1mm	12.5mm	13.2mm	10mm
<b>Size: (L x W)</b>	7.7 x 8.1 in. (195 x 205mm)	10.2 x 10.2 in. (258 x 258mm)	5.5 x 7.3 in. (139 x 185mm)	4.7 x 4.4 in. (119 x 113mm)	6.3 x 4.7 in. (160 x 120mm)	5.1 x 4.9 in. (130 x 124mm)	7.5 x 8.3 in. (190 x 210mm)
<b>Weight:</b>	2 lb. 5 oz. (1060g)	5 lb. 8 oz. (2500g)	22.2 oz. (630g)	15.7 oz. (445g)	20.5 oz. (580g)	23.9 oz. (680g)	3 lb. (1360g)
<b>Product Number:</b>	<b>705</b>	<b>732</b>	<b>735</b>	<b>711</b>	<b>714</b>	<b>777</b>	<b>778</b>

	20x120	15x80	6x15 Monocular	20x60 Spotting Scope**	20x60 Spotting Scope ED**
<b>Focusing System:</b>	Individual	Individual	—	—	—
<b>Magnification:</b>	20X	15X	6X	20X	20X
<b>Objective Diameter:</b>	120mm	80mm	15mm	60mm	60mm
<b>Angular Field of View:</b>					
<b>Real</b>	3°	4°	7.5°	3°	3°
<b>Apparent</b>	60°	60°	45°	60°	60°
<b>Field of View at 1000 yd.:</b>	158 ft	210 ft	394 ft	158 ft	158 ft
<b>Exit Pupil:</b>	6mm	5.3mm	2.5mm	3mm	3mm
<b>Relative Brightness:</b>	36	28	6.2	9	9
<b>Eye Relief:</b>	12mm	16.6mm	11.2mm	15.2mm	15.2mm
<b>Size: (L x W)</b>	27.2 x 18.7 in. (692 x 474mm)	19.6 x 8.7 in. (498 x 220mm)	2.8 x 1.9 in. (72 x 47mm)	12.6 x 2.8 in. (321.5 x 72mm)	12.6 x 2.8 in. (321.5 x 72mm)
<b>Weight:</b>	30 lb. 13 oz. (14kg)	17 lb. 10 oz. (8kg)	1.8 oz. (50g)	30.3 oz. (860g)	34 oz. (965g)
<b>Product Number:</b>	<b>715</b>	<b>720</b>	<b>7710/7711</b>	<b>7705</b>	<b>7709</b>

\*Also available with reticle scale, Product Number 779.

\*\*Optional 15X, 30X and 40X eyepieces are available.