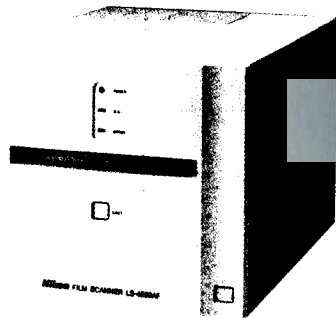


Nikon

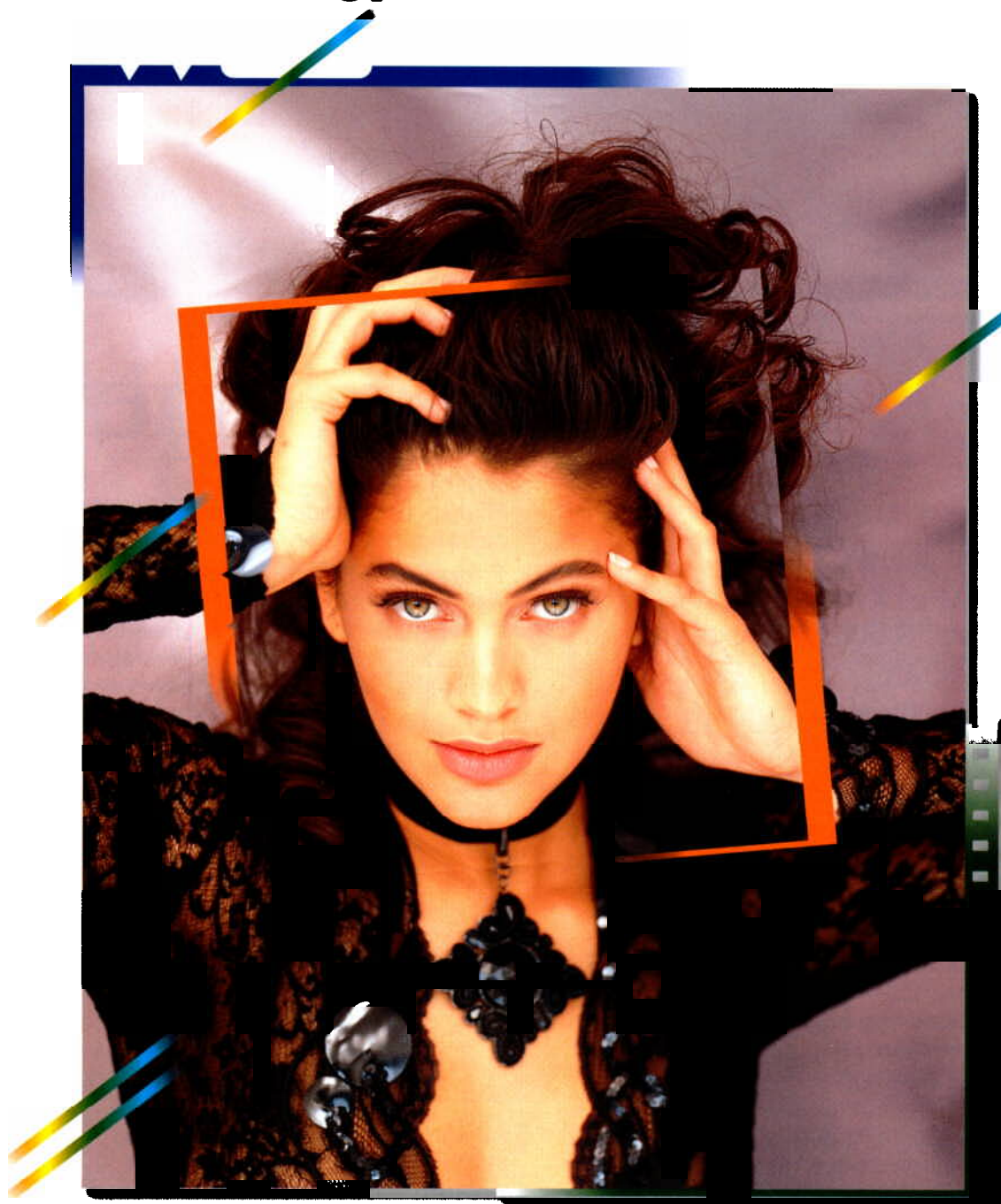


LS-4500AF

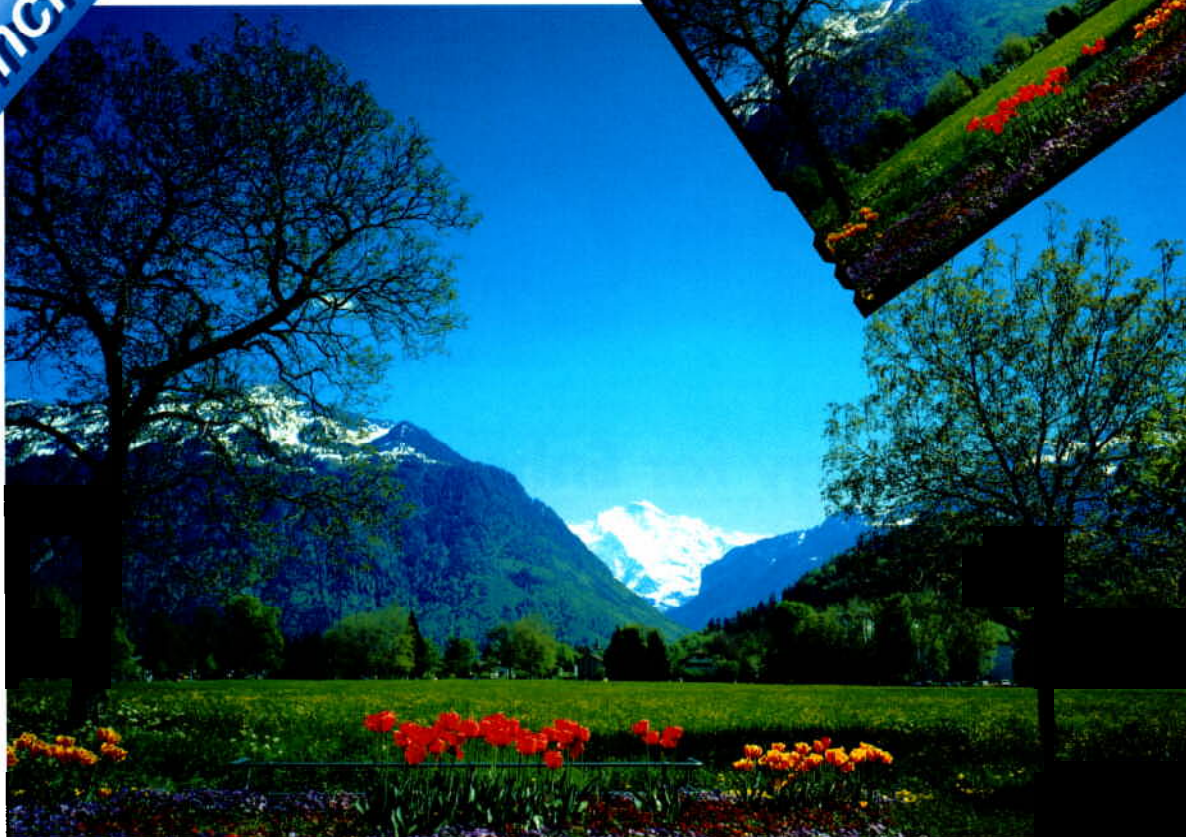
Multi-format Film Scanner

- Supports formats from 35mm to 4 x 5 in.
- Scanning head with dual optical system
- Precision 12-bit A/D conversion maintains wide dynamic range
- Autofocus ensures consistently sharp scans
- 360°-rotation film carriers with masks for all popular frame sizes streamlines production
- Easy-access front-loading design simplifies film handling

New Technology for Enhanced Productivity



4x5inch



One scanner for

The new Nikon Multi-format Scanner LS-4500AF can handle popular film sizes from 35mm up to 4 x 5 in. It features 12-bit A/D conversion, 3,000 dpi resolution on 35mm and 1,000 dpi on 4 x 5 in., and it's small enough to fit on your desktop! The LS-4500AF has an automatic energy-saving cycle and can handle your most demanding high-end film scanning requirements.

Dual optical CCD scanning heads support multiple formats

Now, a single device can fulfill your multi-format needs. Nikon solved the challenge of matching film size to scanning engine by combining two scanning systems within the same device. The result is a scanner with high resolution and performance, giving you the quality you need for all of its formats.



High-performance signal processing and mechanical accuracy

Preserving the wide dynamic range found on commercial transparencies, the LS-4500AF is ideal for professional applications. Color accuracy is tightly controlled through 3D color matrix processing in hardware. The LS-4500's DSPs provide the power to scan and process any final size up to 3,000 dpi in 1 dpi increments, even from panorama formats! Its native scanner intelligence handles a wide array of positive and negative film types, formats, color masks and dye sets.





Example photos shown here are scanned images reproduced by the LS-4500AF.

multiple formats

The LS-4500AF's unique illumination path ensures a compact desktop footprint, and provides uniform edge-to-edge brightness, regardless of the film format, or its particular angle of rotation in the film carrier. High-definition optics overcome the problem of geometric distortion, enabling 3,000/1,000 dpi high-quality output. With a precision-machined ballscrew drive, the LS-4500AF delivers remarkably accurate color registration.

Easy-to-use front-loading design

Film handling with the LS-4500AF is a streamlined operation cutting hours from your scanning production time. With a versatile carrier and mask set, film can be quickly mounted, rotated to a precise angle, and inserted into the autoloading slot. It is positioned by a special servo system to precisely locate the film in the optical path. You can be scanning within seconds, confident that the alignment and focus are accurate.

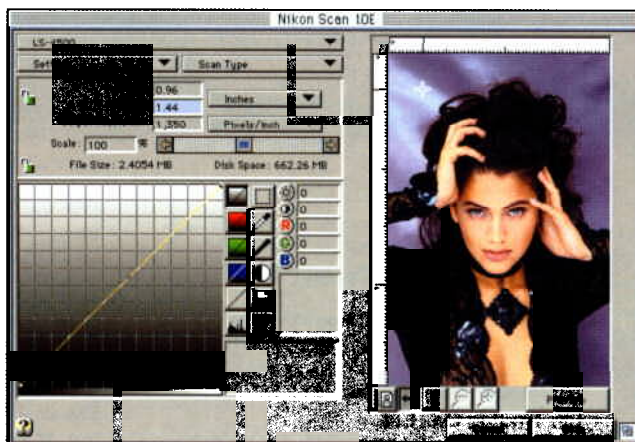
High-speed scanning and preview

The LS-4500AF scans fast — 120 seconds for full-frame 35mm at 3,000 dpi, and 180 seconds for full-frame 4 x 5 in. at 1,000 dpi. Prescan is only 30 seconds on 4 x 5 in. and 20 seconds on 35mm. In addition to precise servo-controlled manual focus, Nikon's autofocus takes care of precision focusing for you. This scanner is suited to large-

volume pre-press scanning operations. The LS-4500AF can breeze through complex assignments, putting the profit back into your scanning operation.

Easy-to-use Nikon software

The LS-4500AF is also an easy scanner to use, giving you the comprehensive controls you need for professional results. Bundled with the scanner, Nikon introduces a completely re-architected Photoshop™ plug-in for Mac OS, and TWAIN



source for Windows users (see back page). The new Nikon Scan driver runs with any Photoshop or TWAIN-compatible image editing software, or stand-alone, using the Nikon Control application shell.

Nikon Scan Driver Software Requirements

Operating System	Mac OS®/Macintosh	Windows®
Computer Platform	68xxx CPU without FPU, or PowerPC™ CPU	IBM® PC-AT compatibles (386, 486, or Pentium™ CPU)
RAM	Plug-in requires a minimum of 2MB free RAM, Virtual Memory and Modern Memory Manager compatible. Image editing applications typically require a minimum of 5 - 8MB RAM. With system memory requirements exceeding 2MB, total recommended RAM should be greater than 16MB for productive scanning.	TWAIN module requires a minimum of 2MB free RAM, Virtual Memory compatible. Image editing applications typically require a minimum of 5 - 8MB RAM. With system memory requirements exceeding 2MB, total recommended RAM should be greater than 16MB for productive scanning.
Hard Disk	Installation requires a minimum of 1MB free space. 300MB or larger disk is recommended for scanning operation.	
Display	640 x 400 (or larger) full-color (24-bit) display recommended	640 x 480 VGA (or larger) full-color (24-bit) display recommended
Interface	SCSI-II	ASPI compliant board supporting WINASPI.DLL
OS Version	System 7.0 or later, in English, German, French versions	<ul style="list-style-type: none"> MS-DOS® version 5.0 or later (requires enhanced mode) IBM®-DOS version 5.0 or later (requires enhanced mode) MS®-Windows version 3.1 or later (Win16 environment), English, German, French versions

Nikon Scan Driver Software Features*

Scanner source selection, source image type selection, resizable dialog box, resizable preview, autoexpose, autofocus, manual focus, crop, zoom, resolution, resize, fiducial reference scale, pixel address coordinate display, on-screen densitometer, sharpening, analog exposure, analog color balance, contrast, brightness, color balance, white point, gamma curve edit, histogram, black point, final scan, eject, instant screen update on density and color adjustment, interactive help

*These features apply to both Photoshop plug-in and TWAIN versions for Mac OS and Windows.

Specifications

LS-4500AF Multi-format Film Scanner

Reading System/Optics		
Film type	4x5 in. film 40mm, 65mm, 75mm, and 120/220 formats, including 6 x 4.5, 6 x 6, 6 x 7, 6 x 9cm, up to panorama formats 35mm film (single frame, 6-frame strip, mounted film) Transparency, positive or negative, color or monochrome	Sub-scanning: stepper-driven film stage [A]: 3 steps/line (2,000 dpi) [B]: 2 steps/line (3,000 dpi)
Reading resolution	5,000-pixel monochrome linear CCD x 2 [A]: 1,000 dpi reading resolution [B]: 3,000 dpi reading resolution Note: Dual optical system modes are indicated by [A] and [B] in this chart.	Scan time [A] Pre-scan: Approx. 30 seconds Final scan: Standard mode — approx. 210 sec. Medium-speed mode — approx. 180 sec. (@ 1,000 dpi, 4,500 x 3,600 pixels for approx. 46.3MB) [B] Pre-scan: Approx. 20 seconds Final scan: Standard mode — approx. 200 sec. Medium-speed mode — approx. 120 sec. (@ 3,000 dpi, 3,900 x 2,600 pixels for approx. 29MB)
No. of pixels	[A]: Maximum 5,000 x 12,000 pixels [B]: Maximum 5,000 x 18,000 pixels	Scanning spatial density Pixel density: [A]: maximum 2,000 dpi interpolated from 1,000 dpi [B]: maximum 3,000 dpi
Effective scanning area	[A]: 5 in. (Main scan) x 6 in. (Sub-scan) [B]: 42mm (Main scan) x 6 in. (Sub-scan)	Pixel size: [A]: 12.7µm square [B]: 8.5µm square
Light source	12V-20W halogen lamp	A/D conversion 12 bits per color channel
Color separation	RGB frame sequential	Output data 8 bits per color channel
Film carrier	The following film formats are supported by three types of film carriers, and masks are used to mount the film according to aperture/frame size. All carriers can be manually rotated for exact alignment during scan, except the 35mm 6-frame strip carrier. 4 x 5 in. sheet film 6 x 4.5, 6 x 6, 6 x 7, 6 x 9cm cut frames 35mm cut frames (three-up) 35mm mounted slides (four-up) 35mm x 6 frame strip	Data transfer
Imaging optics	[A]: 8 lenses in 4 groups [B]: 6 lenses in 4 groups	Panel indicators POWER, BUSY and ERROR status indicated by LED
Autofocus	Contrast detection by CCD, focusing area selectable, manual focusing by software-controlled servo	Scanning software Photoshop plug-in for Mac OS and TWAIN source for Windows. Nikon Scan application supports Photoshop plug-in and TWAIN source on both Mac OS and Windows platforms.
Scanning/Signal processing		Interface SCSI-II
Image scanning	Three-pass RGB Main scan: 5,000-pixel monochrome linear CCD [A]: 5,000 pixels (hardware-interpolated to 10,000) [B]: 5,000 pixels	Image transfer Three-pass RGB frame sequential Maximum transfer rate 1MB/sec. or better
		Operating conditions
		Power requirements 100 - 120VAC/200 - 240VAC; 0.8A/0.4A, 50/60Hz
		Environmental Temperature: 10°C - 35°C (50°F - 95°F) Relative Humidity: 30 - 85% (non-condensing)
		Dimensions (W x D x H) and weight (approx.) 295 x 420 x 250mm; 13kg (11.6 x 16.5 x 9.8 in.; 28.7 lb.)

All products indicated by trademark symbols are trademarked and/or registered by their respective companies.

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. June 1995

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