Kodak DCS history

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In 1982-1990 Kodak introduced the Disc cameras (KODAK Disc 2000/4000/6000/8800 Camera , 1982; 3500 (1983); 3100/4100/6100 (1984); HAWKEYE Disc 7000 Camera/KODAK Tele Disc Camera/Tele CHALLANGER Disc/ (1985); 3600/CHALLENGER Disc Camera/MEDALIST I/II Disc Camera (special edition). In one way or another, these Disc cameras formed the basis for digital imaging as they are not entirely considered as conventional film-based cameras. In 1986, Kodak invented the world's first megapixel sensor, capable of recording 1.4 million pixels that could produce a 5 x 7-inch digital output in print. An interesting development in the market was late in the 80's where the Japanese electronic Sony (together with Canon - see photo) first demonstrate their Still-Video cameras using CCD sensors and a Floppy as analog storage media (in NTSC signal format).In 1994 the Sony Mavica-Series, used 1.4 MB Floppy Diskette as digital storage media. Lastly, after losing a patent battle with Polaroid, Kodak left the instant camera business in 1986.

Canon RC-250 QPIC still video camera

A still video camera is a type of electronic camera that takes still images and stores them as single frames of video. They peaked in popularity in the late 1980s and can be seen as the predecessor to the digital camera. The best known models include the Sony Mavica and Canon's Ion and Xapshot cameras.

The most common design has an image sensor and basic processing hardware similar to that of a domestic analog camcorder. However, instead of storing consecutive frames on tape to form a moving image, a single frame is extracted from the output video signal and saved on a rotating magnetic disk (such as a video floppy). In playback, the disk is spun at the frame rate of the video system with the frame being read repeatedly. This produces a conventional video signal that can be viewed on a normal television.

The obvious limitation is that the playback system is roughly equivalent to the operation of a paused video recorder. Since the video is stored as a conventional video frame in a format such as NTSC or PAL, the resolution is limited to that of any other video. And since the images are not stored digitally, transferring the photos to a computer requires avideo capture card.

Prototype Sony Mavica still video camera from 1981.

1990 - Kodak announced the development of its Photo CD system. The system provided an advantage of enabling digitized images for playing on television screens, and the Company was proposed a worldwide standard for defining color in the digital environment of computers and computer peripherals. This has in a way leads to many possibilities in commercial applications for digital imaging.

Additional information on Nikon Still-Video Camera Model 1 (1986)
& Nikon QV-1000C Still Video Camera (1988)

1991 - The KODAK Professional Digital Camera System (DCS) was introduced. The first of such unit was the DCS-100 under the DCS-label was a basic Nikon F3 SLR camera body with a modified motor drive unit MD-4/Focusing screen setup. The KODAK Professional Digital Camera DCS-100 System is a portable system consists of a camera back and camera winder fitted to an unmodified Nikon F3 camera, and a separate digital storage unit (DSU) that connects to the camera winder via an interconnect cable. The camera back incorporates a Kodak CCD image available in a color and a monochrome model. When you make an exposure, the image records data on a 1280 x 1024-pixel matrix, resulting in image composed of 1.3 million pixels of data. The film speeds of ISO 100, 200, 400, 880,* and 1600* in color or ISO 200, 400, 880, 1600* and 3200* in B&W. The camera motor drive attached to the bottom of the camera is linked to the DSU via cable. The camera winder performs an 8 bit analog to digital conversion of the image data and transmits digital data to the DSU - The winder incorporates a shutter release button used instead of the Nikon F3 shutter release button, and a motor drive. (A power winder is required even without film because the camera Is unmodified and the shutter must be recorded after each picture.) * These speed are possible but at the expense of loss in image quality (similar to push-processing of conventional film).

The DSU and camera operate from a standard rechargeable camcorder battery or the 12-volt AC adapter supplied by Kodak. When operated from the battery, the DSU and camera are portable, and captured images can be viewed immediately in B&W on a four-inch monitor built into the DSU. You can store up to 156 uncompressed images on the 200 megabyte hard disk in a DSU without a compression board. If your DSU is equipped with a compression board., you can store 142 images if compression is off, and from 400 to a maximum of 699 images if compression is on. Eight-megabytes of dynamic random access memory (DRAM) are incorporated in the DSU with an option to upgrade to a total of 32-megabytes of DRAM). This enables the camera can handle up to a six-image burst at 2.5 images per second with eight megabytes of DRAM and up to a 24-image burst with 32 megabytes of DRAM. Then the rate slows to one image every two seconds. Images are stored briefly in DRAM before they an moved to the hard disk.

Credit: Image of this Kodak DCS-100 with the Storage Unit shown at the left hand side was download from this Russian website. Image has been modified slightly to shutter this page - this is the closest image I can find via the net, if you have a better picture (such as the images from the original press release) please mail to me.

The site also listed a prototype Kodak DC-3 model which was produced in 1992, it was a1280x1024 pixel with a 14 x 9.3 mm sensor which delivers a 1.54 million pixels and has a wider range of ISO from 200-3200

NOTE: -See Instruction Manuals for respective Models at the bottom of this page.

Keypad controls on the DSU (and on an optional keyboard) allow you to find images on the bard disk, load them into the DSU DRAM, and display them on the DSU image display. A two-lines text display on the DSU provides you with status and control information. Images from the DSU hard disk can be transferred to one of several computers with one of the special software dri'vers provided by Kodak. Once you have acquired the image, you can use your copy of image-editing software to edit the image using all of the features of that product. Optional features includes to allow user to connect a keyboard (available from Kodak) and a Telebit modem to the Digital Storage Unit. A variety of data entry is possible via the use of the keyboard with each image captured. However, Kodak recommends the use of lenses with focal length of 60/75% of the lense you would use for conventional 35mm film photography whichcoem of arppox. a factor of 1.8. For an example, if you wish to achieve an equivalent of a 50mm focal length, then use a 35mm lense with this camera. WHY ?? this is because due to the size of the sensor which only comprised of portion of a standard 36 x24mm format.

Click for ENLARGED view(s)

Credit: Image of this rare early version of the Kodak Digital setup courtesy of Ebay ID: "'ds-spc' (StephensPhotoCentre)" who specialises in Leica, Nikon and all collectable cameras (Ship Worldwide). The Company also operates a popular Ebay Store. All images appeared herein are Copyright © 2005. All rights reserved. Please respect the visual property of the contributing photographer.

MORE Information on Nikon F3 and all its variants ...

KODAK Camera Back and Imager: You use the KODAK Camera Back instead of the normal Nikon F3 film back. The camera back incorporates a 1280 x 1024-pixel CCD Kodak M3 imager that collects light on 1.3 million pixels, each 16 x 16-micrometers The imager is designed to contain the effect of very bright areas in the image by preventing them from smearing into adjacent areas of the image. Data collected in the imager in the camera back is sent as analog data to the KODAK Camera Winder attached to the bottom of the camera. There are two versions of the imager, one for the color camera (incorporating a built-in color filter array) and another for the monochrome camera.

Credit: Images of this hard to find Kodak DSU K370-2801 Digital Storage unit courtesy of "Somia Aissa" . He/she also operates a Ebay Store. All images appeared herein are Copyright © 2003. All rights reserved. Please respect the visual property of the contributing photographer.

Digital Storage Unit ("DSU"). The image display on the LCD is a 4-inch video screen on the digital storage unit (DSU) control panel that displays a single image from a 8 megabytes dynamic random access memory (DRAM) in the DSU that can support a six-frame burst of images. (supports a 24-image burst. with 32MB).

Credit: Images courtesy from management of IGOR Camera Exchange® http://www.igorcamera.com>. Images copyright © 2003. All rights reserved. Please respect the visual property of the contributing photographer.

Please note: An image must be in DRAM before it can be shown on the image display. There are several ways in which you can place images into DRAM. When you make pictures, each image is first placed into DRAM, and then moved to the hard disk, When DRAM contains no images, as it does when you first turn on the DSU, it is possible to shoot six pictures continuously (with eight MB of DRAM) at the rate of 2.5 images per second (one image every OA seconds). This rate will be slower when the video display is on. If you continue to depress the shutter release button, new pictures are made at a rate of 03 images per second (one image every two seconds) as images already in DRAM are moved to disk to make room for the new imago. (The optional 32-megabyte DRAM allows for a burst of 24 images.) You can also move images into DRAM from the hard disk by pressing HOME, <, >, and Find Tags while the image display is on. The display also equipped with zoom key to view images as well as 3-settings on WHITE BALANCE (Daylight/Tungsten and FLUOR light source). Also note: Image files stored on the DSU are only 1/3 in file size as compared to files imported into the computer via Kodak's software. Battery and Battery Charger You can operate the digital storage unit (DSU) from a standard rechargeable 12-volt, 2.3 ampere-hour camcorder battery. (As an alternate from an external AC adapter). Kodak recommended other 3rd parties alternatives such as Panasonic LC 2012 (2 Ah); Panasonic LC 2312 (2.3 Ah) and chargers such as: Chinon CV AC32; Mips V8809313KOI or Aztec AZ 1223. Motor Drive: Recocks the shutter through the camera motor drive coupler. The motor drive provides for a maximum burst rate of 2.5 images/second. Note: The Nikon F3 camera that the shutter be recocked after each photograph. Since the digital'camera system uses an unmodified Nikon F3 camera, the camera system must recock the shutter em though you are not using film. Shutter release button: Trips the shutter; used instead of the shutter release button on the Nikon F3 camera. Interconnect cable Connects the camera winder to the DSU. Other features: Video out port for immediate viewing via TV-screen, SCSI interface connectivity.

Credit: Image of this rare early version of the Kodak Digitalsetup courtesy of Ebay ID: '"ds-spc' (StephensPhotoCentre)"who specialises in Leica, Nikon and all collectable cameras (Ship Worldwide). The Company also operates a popular Ebay Store. All images appeared herein are Copyright © 2005. All rights reserved. Please respect the visual property of the contributing photographer.

MORE Information on Nikon F3 and all its variants ...

1992 The company announced a joint R&D project with Canon, Fuji, Minolta and Nikon to develop an Advanced Photographic System ("APS").

1992/3. Kodak Professional DCS-200 Digital Still SLR camera. The year also saw Kodak introduced another early consumer digital products, the 1.54 million DCS 200 Digital Camera back which also uses combination of Kodak software/Nikon optic, the camera has a built-in hard drive for image recording and it was an entirely different package from the early DCS-100 module as basically the camera used as its backbone was a all electronic Nikon AF-SLR F801 (N8808s in North America).

As the camera does not required the bulky Storage Unit that came with the earlier DCS-100. So, comparatively, it is more compact and highly portable as it is without cable but still weighs approx. 1,7 kg The 14 x 9.3mm imager delivers 1524 x 1012 pixels image capacity.. The size of the picture in viewfinder of DCS 200 is near of the size of 24 x 36 and to obtain the equivalent focal length in 24 x 36, it is necessary to divide the focal by 2.6X.

DCS 200 Camera Models: Five camera models are available: DCS 200ci (color camera, 50-image internal hard disk), DCS 200c (color camera, single-image storage), DCS 200mi (monochrome camera, 50-image internal hard disk), DCS 200mi (monochrome camera,, single-image storage) and DCS -200IR (infrared monochrome camera, 50-image internal hard disk). The built-in 80 megabyte hard disk can store fifty pictures; each picture needs 4,5 Meg. To visualize pictures taken, it is necessary to unload the content of the hard disk on a microcomputer via the integrated SCSI interface. DCS 200 does not comprise integrated LCD monitor screen. It is possible to take a picture every 2,5 seconds. Batteries allow to take a hundred of pictures.

NOTE: -See Instruction Manuals for respective Models at the bottom of this page.

Although the DCS 200 Camera operates with an unmodified Nikon N8808s camera, there are differences between normal operation of the Nikon N8808s camera and its operation as part of the DCS 200 Camera. Firstly, he KODAK camera back comes attached to the Nikon camera body, with the DCS-200, you use the KODAK camera back incorporating a Kodak imager instead of the Nikon N8808s camera back for film. The DCS 200 Camera operates correctly only in single-frame (S) film-advance mode. You must use only the prescribed ISO settings. Select an ISO setting of 50, 100, 200, or 400 for color camera backs, or 100, 200, 400, or 880 for monochrome cameras. Multiple-exposure mode does not work. The film installation mark, film advance and rewind mark, and frame counter do not appear in the Nikon N8808s camera liquid crystal display (LCD). (A frame counter appears in the LCD in the KODAK camera back.)

The pictures you take are stored on the internal hard disk in the DCS 200 Camera, OR on an optional external hard disk, or in single-image dynamic random access memory. Please also note that: DCS 200 Camera operates correctly only in single-frame film-advance mode (NOTES. If either the CL or CH film modes are selected, later when you take pictures, the camera will continuously take pictures although only the first shot will I be recorded).NEXT; the camera batteries do not provide any power to the camera back, and the camera back batteries do not provide any power to the camera. If you use the AC battery charger/adapter it provides power to and charges only the rechargeable batteries in the camera back, it has no effect on the batteries in the Nikon camera. Further, In selecting an exposure setting begin with lower exposure index settings; reserve the use of higher speeds only for situations requiring their use. Higher speeds may result In lower-quality images than lower speeds. Later, if you are unable to take pictures, you may see "ISO" blinking on the KODAK camera back LCD. This indicates that the camera body is not set to one of the four prescribed ISO settings. The camera may not shoot in this condition. Reset the ISO. When the light level is not favorable, (Optional) when in doubt, use a flash both indoors and outdoors. flash performs as you would expect it to with the regular camera. Set an SB-24. 25, 26 etc. Nikon speedlights to shoot in TTL, Normal mode. Lastly, Center-weighted metering and Spot metering can be used. Matrix metering is NOT supported. You can take pictures with the camera while it is connected to the computer (for example in a studio setting), however, you cannot connect the camera to your computer while an optional external hard disk is connected. The DELETE button on the camera back is disabled while the camera is connected to a computer. Instead use the DeLETE button on the image window of the software driver to delete selected images.

The focusing screen shipped in the camera has been modified with a shaded border to reduce your view of the scene to match the size of the picture that will be recorded on the imager (screen can be purchased if damaged, see below). Your picture is stored initially in the dynamic random access memory (DRAM). The hard disk must then spin-up before the image can be moved from DRAM to the hard disk (Read below).

Please NOTE: The segmented focusing screen causes the field of view equal to use a lense with 2.6 times the focal length of a working lense in 135 format. There is no WHITE BALANCE control on the camera, instead, it is available at the software section when images have been transferred to a computer. The DAY, TUNG, TungBG40, FLUOR, or FLASH choices correspond to daylight, tungsten, tungsten using a Schott BG-40 1 mm filter

There is no RAW files output with the DCS-200 but Kodak has an equivalent software where the original image has a significant smaller file size when stored inside the hard disk and will be expanded when imported to the computer (a standard 1.5MB file will be "expanded" into 4.5MB when imported). The driver supplied by Kodak for use with Adobe Photoshop software provides a variety of features that allow you to work with images on the DCS 200 Camera (with or without an internal hard disk), on an optional external hard disk and on the Macintosh computer hard disk. The driver allows you to: Acquire single images from the camera or an external hard disk Into Adobe Photoshop and then edit & save them Into a variety of popular file formats. Note*: Image management of the DC-200 - creates finished files as either FLASHPIX or JPEG files. Interfaces: Windows 16/32 bit DLL and TWAIN32; Interfaces: Macintosh Static Libraries for both PPC and 68K , Shared Library for PPC, and Plug-in Note**: The DC200 Camera has been discontinued on March 1, 1999, It has been replaced in the DC camera family by the DC200 Plus

Camera Back - The DCS 200 Camera can operate from batteries alone, making the system portable, and flexible. The KODAK camera back operates from six M-type rechargeable nickel cadmium batteries. The Nikon N8808s camera operates from four separate AA-type alkaline batteries (or from four M-type NiCad batteries whose '+' terminals do not exceed 6 mm in diameter). The KODAK camera back incorporates a KODAK charge coupled device (CCD) imager available in a color and a monochrome model. When you take a picture, the imager records data on a 1524 x 101 2-pixel matrix, resulting in images composed of 1.5 megapixels of data. Four exposure indexes equivalent to film "eds, of ISO 50, 100, 200 and 400 in color or ISO 100, 200,, 400.. and 880 in black and white. A two megabyte (MB) single-image dynamic random access memory (DRAM) that holds the current image. You can also use an 80 megabyte (MB) internal hard disk that holds 50 images or an optional third-party external hard disk is also available in several different storage capacities. A liquid crystal display (LCD) that shows status and control information. A SCSI port to connect the DCS 200 Camera to your computer for moving images from the camera to your computer. Two controls - one sets the camera back SCSI ID, the other deletes the last image from the hard disk. Software drivers to move images from the camera back to your computer.

DCS 200 Camera models without a hard disk are intended for use when connected to a computer and as each image you take is automatically available for uploading to the computer. a single image which is saved in dynamic random access memory (DRAM). If you take additional pictures, each replaces the previous image in -DRAM; each previous image is lost.

Using the DCS 200 Camera with an External Hard Disk IMPORTANT. There are SCSI settings on the KODAK camera back and on the external hard disk- however, they do not need to match when the external hard disk is connected to the camera. They are used when connecting to a Macintosh computer or a PC. Once attached to the DCS 200 Camera, the hard disk no longer functions as a general-purpose hard disk, you can only access image data with the supplied software drivers. The oval at the right of the LCD indicates the amount of the hard disk filled with images. As more pictures are taken, subsequent sectors of this graphic appear. The camera will not allow you to take pictures during part of the time that the hard disk is active (writing a captured image). The LCD has a DEL button for deletion of any specified images at will. Please note: No images will be saved to an internal hard disk if an external hard disk is attached. Further, no images will be deleted from the internal disk while an external hard disk is attached. You must remove the external hard disk before you can delete images from the internal hard disk. Multiple external hard disks can be used - one at a time, You can remove one external hard disk from the camera and replace it with another. Do not attach more than one external hard disk to the DCS 200 Camera at the same time; if you do, you may have unpredictable results. You can connect detached external hard disks to a computer and move images from external hard disks to your computer hard disk.

Optional Camera Equipment: KODAK Color Filter Wheel Accessory; CAT No. 130 2447. (For use only with monochrome camera backs with internal hard disks and only with Macintosh computers.) This accessory consists of a motor-driven red, green, and blue filter wheel with support electronics that enables the DCS 200mi monochrome camera model to produce high-quality color images. Sequential red, green, and blue exposures are combined to produce a full 24-bit color image. This accessory cannot be used simultaneously with an external hard disk. We recommend the use of a QB2 (see next paragraph) when using this accessory. External Battery Adapter This accessory is a replacement for the nickel cadmium battery clip in the KODAK camera back. This accessory allows the system to be used with the Quantum Battery 2 (QB2). The QB2 is a rechargeable, external power pack that extends operating time for the DCS-200 Camera. The Q82 should not be used to provide power to an electronic flash, because a low battery condition may occur when the flash is discharged. Schott 1mm BG-40 filter by Schott Glass Technologies Inc. Improves color fidelity under tungsten lighting. These filters must be cut for screw mount holders (by Tiffen), can cut and mount these filters in any lens mount you specify.

Accessories: Focusing screens. Custom focusing screens for the Nikon N8808s camera can be produced by Maracle Industrial Finishing Company, Inc., 39 Commercial Street, Webster, NY 14580,. telephone 716-872-5100, fax 716-872-0285. Pelican Pro Case 1550. A hard shipping case for the DCS- 200 Camera. Available from Bristol Case Company, 34 Elton Street, Rochester, NY 14607,,1-880-343-3408. Electronic Flash and accessories; Extra lenses for the Nikon N8808s camera. Close-up accessories. Nikon remote control accessories; Finder accessories. Batteries: Kodak recommended only nickel cadmium (NiCad) batteries should be used with the KODAK camera back. In an emergency you can use six matching non-rechargeable alkaline batteries, although their life will be shorter (30-40 images) as compared to a fully charged NiCad batteries which can deliver approx. 100-200 images). Please note that: Do not use the AC battery charger adapter while alkaline batteries are in the KODAK camera back. Do not use cables other than those supplied with the DCS 200 Camera which includes the SCSI cables, except that the Nikon remote release cord.

| Previous | NEXT | 1/8 Kodak / Nikon DCS-410 & 420 Dgital Still SLR camera

for Kodak DCS-System 100 in PDF format Part ONE (4.2 MB) | Part TWO (7.0 MB)
for Kodak DCS-System 200 in PDF format Part ONE (5.8 MB) | Part TWO (5.0 MB) | Part THREE (5.8 MB)

DCS-100 | DCS-200 | DCS-410 | DCS-420 | DCS-1, 3, 5 Series | DCS-300 Series | DCS-500 Series | DCS-600 Series | DCS-700 Series

| Nikon Digital Still SLR models | Fuji's FinePix S1 Pro | Fuji's FinePix S2 Pro

Highly recommdended web links (External):
History of Kodak Cameras

| Back | Nikon SLR camera Models
| Back | Canon EOS SLR camera Models

Have an issue with your digital camera / system accessories ?
Post a question and/or an opinion at the | Message Board Section | for various makes of Digital Still SLR camera Models

The Eyes of Nikon:-

Nippon Kogaku KK Rangefinder RF-Nikkor lenses:- Main Index Page
Nikon Auto Focus Nikkor lenses:- Main Index Page
Nikon Manual Focus Nikkor lenses- Main Index Page
Fisheye-Nikkor Lenses - Circular | Full Frame | Ultrawides Lenses - 13mm15mm18mm20mm | Wideangle Lenses - 24mm28mm35mm |
Standard Lenses - 45mm 50mm 58mm | Telephoto Lenses - 85mm105mm135mm180mm & 200mm |
Super-Telephoto Lenses - 300mm 400mm 500mm 600mm 800mm 1200mm |
Special Application lenses:
Micro-Nikkor Lenses - 50mm~55mm -60mm 85mm -105mm 200mm Micro-Zoom 70-180mm
Perspective Control (PC) - 28mm 35mm PC-Micro 85mm
Dedicated Lenses for Nikon F3AF: AF 80mm f/2.8 | AF 200mm f/3.5 EDIF
Depth of Field Control (DC): 105mm 135mm
Medical Nikkor: 120mm 200mm
Reflex-Nikkor Lenses - 500mm 1000mm 2000mm
Others: Noct Nikkor | OP-Nikkor | UV Nikkor 55mm 105mm | Focusing Units | Bellows-Nikkor 105mm 135mm
Nikon Series E Lenses: 28mm35mm50mm100mm135mm | E-Series Zoom lenses: 36~72mm75~150mm70~210mm
MF Zoom-Nikkor Lenses: 25~50mm | 28~45mm | 28~50mm | 28~85mm | 35~70mm | 36~72mm E | 35~85mm | 35~105mm | 35~135mm |
35~200mm | 43~86mm | 50~135mm | 50~300mm | 70~210mm E | 75~150mm E | 80~200mm | 85~250mm | 100~300mm | 180~600mm | 200~400mm | 200~600mm | 360~1200mm | 1200~1700mm

Tele-Converters: TC-1 | TC-2 | TC-200 | TC-201 | TC-300 | TC-301 | TC-14 | TC-14A | TC-14B | TC-14C | TC-14E | TC-16 | TC-16A | TC-20E

Nikon F | Nikon F2 | Nikon F3 | Nikon F4 | Nikon F5 | Nikon F6 | Nikkormat / Nikomat |
Nikon FM | Nikon FE/ FA | Nikon EM/FG/FG20 | Nikon Digital SLRs | Nikon - Other models

MIR Supports for Photographic Community: Various Message Boards/Community Forums
Nikon F-series| Nikon F2-series| Nikon F3-series| Nikon F4-series| Nikon F5-series|Nikkormat/Nikomat-series
Nikon FM-series|Nikon FE-series|Nikon FA|Nikon Digital SLR series|Various Nikon Models|Nikkor Optic -shared

Others:- Free Trade Zone - Photography| Free Trade Zone - Business Community |Free To Zouk - Photographic Community
Apple's Mac Public Community Message Board | Windows based PC & Apple/Mac Public Community Trade Exchange Centre

Recommended links to understand more technical details related to the Nikkor F-mount and production Serial Number:
http://rick_oleson.tripod.com/index-153.html by: my friend, Rick Oleson
http://www.zi.ku.dk/personal/lhhansen/photo/fmount.htm by: Hansen, Lars Holst
http://www.mir.com.my/rb/photography/hardwares/nikonfmount/lens2.htm
http://www.photosynthesis.co.nz/nikon/serialno.html

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