Nikon

At the heart of the image

D810A

I AM INTERSTELLAR

Capture the red mysteries of the cosmos with an ultrahigh-definition DSLR camera designed exclusively for astrophotography

Shoot spectacular high-resolution images of the cosmos. Engineered exclusively for astrophotography, the D810A captures magnificent 36.3-megapixel images of nebulae that emit on the hydrogen-alpha wavelength. Thanks to a redesigned infrared (IR) cut filter, the D810A is four times more sensitive to the H-alpha spectral line (a wavelength of approx. 656 nm) than the D810. A powerful tool for photographers, this specialised D-SLR frees you to capture the true colour of deep sky marvels without modifying the camera. Specialized functions answer the challenges of astrophotography. And the camera's ultra-high ISO and exceptional resolving power ensure brilliant detail.

• Eta Carina Nebula • Telescope: Cassegrain 32″ f/7 (focal length 5600 mm) • Correcting lens: N/A • Equatorial telescope: 32″ Fork Mount • Image quality: 14-bit RAW (NEF) • Exposure: [M] mode • Sensitivity: ISO 400/ISO 800 • Exposure time per image and number of composites: f/7, 300 s × 5 images/300 s × 3 images © Johannes Schedler

Note: When you shoot photos using light sources, or general subjects that feature high reflectance of significant amount of near-infrared wavelengths using the D810A, the resulting image may be more reddish than the actual color. This model is not recommended for general photography because appropriate color reproduction cannot be obtained.

NEW **Nebulae that emit with an H-alpha wavelength can be captured beautifully with the enhanced transmission characteristics of the optical filter (IR cut filter).**

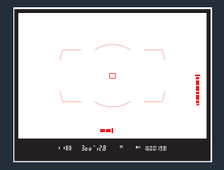
For the D810A, transmission characteristics of the optical filter (IR cut filter) placed in front of the image sensor have been reassessed for astrophotography. With a general digital SLR camera, transmission of reddish light in the visible light range is restricted to reproduce the colors of subjects properly, because the H-alpha spectral line (wavelength: 656.28 nm) is located within this range. Hence, nebulae that emit with the H-alpha wavelength can be captured only palely. On the contrary, the optical filter (IR cut filter) of the D810A achieves high transmission of reddish light in the visible light range, quite close to the infrared range. As a result, transmission of the H-alpha spectral line has been increased by approx. four times, compared to the D810, achieving the reproduction of nebulae that emit with the H-alpha wavelength beautifully in red as astrophotographers expect.

D810: Normal optical filter (IR cut filter)

D810A: Optical filter (IR cut filter) compatible with H-alpha spectral line

NEW **Virtual horizon display in the viewfinder that remains lit in red* for confirming that the camera is level when shooting star landscapes.**

* When virtual horizon is displayed in the viewfinder in M* mode



NEW **Preview function for shutter speed settings longer than 30 seconds is available, which is useful for focusing and framing adjustment during live view.**

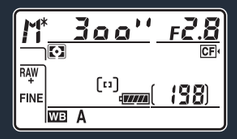
When long exposure* is used with the shutter speed set at longer than 30 seconds, which is frequently employed for astrophotography, a previewed image equivalent to the one obtained at 30 seconds is displayed as a virtual image (exposure at this time is not the same as that of the resulting image). This supports easy focusing and framing.

* When Bulb or Time is set at M mode or M* mode, or when the shutter speed is set at 60, 120, 180, 240, 300, 600 or 900 seconds at M* mode.

• Comet Lovejoy and Pleiades (M45) • Lens: AF-S NIKKOR 200mm f/2G ED VR II • Correcting lens: N/A • Equatorial telescope: Piggyback 32″ • Image quality: 14-bit RAW (NEF) • Exposure: [M] mode • Sensitivity: ISO 400 • Exposure time per image and number of composites: f/2.8, 300 s × 3 images + 6 images (mosaic processing applied to 2 points)
© Johannes Schedler

NEW **Long-exposure manual (M*) mode that enables setting of a shutter speed up to 900 seconds, which is convenient for long-time exposure, is employed.**

Long-exposure manual (M*) mode is newly added to existing P/S/A/M exposure modes. Maximum number of shots in continuous shooting is canceled at a shutter speed of 4 seconds or slower. Shutter speed setting at 4, 5, 8, 10, 15, 20, 30, 60, 120, 180, 240, 300, 600, 900 s, and Bulb and Time settings are available. Because selectable shutter speed is equivalent to actually controlled speed, this is useful for long exposure, composite and lighten composite. In particular, the calculation of total exposure time is easy when conducting lighten composite.



Johannes Schedler

Astrophotographer. Born in Graz, Austria, 1953.
"After using the D810A for the first time I was surprised about the overall sensitivity and especially the capability to capture faint H-alpha emissions of nebulae and within extended sky areas. Shooting the famous Orion constellation, I saw even on short exposures of a minute the very faint Barnard's Loop popping out of the image as well as the Horsehead Nebula area, targets that have typically only been visible in CCD images so far.
I was impressed again when I created time-lapse videos with the D810A. The produced video again showed traces of faint red nebulae such as the California Nebula, Barnard's Loop and other Milky Way nebulae, and at the same time spectacular air glow, red waves similar to an aurora moving across the image, that I had never seen before."

His website: **panther-observatory.com**

Nikon Digital SLR Camera D810A Specifications

• Sections changed from the D810 are **shown in bold**.

Type of camera	Single-lens reflex digital camera
Lens mount	Nikon F mount (with AF coupling and AF contacts)
Effective angle of view	Nikon FX format
Effective pixels	36.3 million
Image sensor	35.9 × 24.0 mm CMOS sensor
Total pixels	37.09 million
Dust-reduction system	Image sensor cleaning, Image Dust Off reference data (requires Capture NX-D software)
Image size (pixels)	• FX format (36 × 24): 7360 × 4912 (L), 5520 × 3680 (M), 3680 × 2456 (S) • 1.2× (30 × 20): 6144 × 4080 (L), 4608 × 3056 (M), 3072 × 2040 (S) • DX format (24 × 16): 4800 × 3200 (L), 3600 × 2400 (M), 2400 × 1600 (S) • 5:4 (30 × 24): 6144 × 4912 (L), 4608 × 3680 (M), 3072 × 2456 (S) • FX-format photographs taken in movie live view: 6720 × 3776 (L), 5040 × 2832 (M), 3360 × 1888 (S) • DX-format photographs taken in movie live view: 4800 × 2704 (L), 3600 × 2024 (M), 2400 × 1352 (S) * Note: Photographs taken in movie live view have an aspect ratio of 16:9; A DX-based format is used for photographs taken using the DX (24×16) 1.5× image area; an FX-based format is used for all other photographs
File format	• NEF (RAW): 12 or 14 bit, lossless compressed, compressed or uncompressed; small size available (12-bit uncompressed only) • TIFF (RGB) • JPEG: JPEG-Baseline compliant with fine (approx. 1:4), normal (approx. 1:8) or basic (approx. 1:16) compression (Size priority); Optimal quality compression available • NEF (RAW)+JPEG: Single photograph recorded in both NEF (RAW) and JPEG formats
Picture Control system	Can be selected from Standard, Neutral, Vivid, Monochrome, Portrait, Landscape, Flat; selected Picture Control can be modified; storage for custom Picture Controls
Storage media	SD (Secure Digital) and UHS-I compliant SDHC and SDXC memory cards; Type I CompactFlash memory cards (UDMA compliant)
Dual card slots	Either card can be used for primary or backup storage or for separate storage of NEF (RAW) and JPEG images; pictures can be copied between cards
File system	DCF 2.0, DPOF, Exif 2.3, PictBridge
Viewfinder	Eye-level pentaprism single-lens reflex viewfinder
Frame coverage	• FX (36×24): Approx. 100% horizontal and 100% vertical • 1.2× (30×20): Approx. 97% horizontal and 97% vertical • DX (24×16): Approx. 97% horizontal and 97% vertical • 5:4 (30×24): Approx. 97% horizontal and 100% vertical
Magnification	Approx. 0.7× (50 mm f/1.4 lens at infinity, -1.0 m^{-1})
Eyepoint	17 mm (-1.0 m^{-1}; from center surface of viewfinder eyepiece lens)
Diopter adjustment	-3 to +1 m^{-1}
Focusing screen	Type B BriteView Clear Matte Mark VIII screen with AF area brackets and framing grid
Reflex mirror	Quick return
Depth-of-field preview	Pressing Pv button stops lens aperture down to value selected by user (A, M and **M*** modes) or by camera (P and S modes)
Lens aperture	Instant return, electronically controlled
Compatible lenses	Compatible with AF NIKKOR lenses, including type G, E, and D lenses (some restrictions apply to PC lenses), DX lenses (using DX (24×16) 1.5× image area), AI-P NIKKOR lenses, and non-CPU AI lenses (exposure modes A, M and **M*** only); IX-NIKKOR lenses, lenses for the F3AF, and non-AI lenses cannot be used: The electronic rangefinder can be used with lenses that have a maximum aperture of f/5.6 or faster (the electronic rangefinder supports the 11 focus points with lenses that have a maximum aperture of f/8 or faster)
Shutter type	Electronically controlled vertical-travel focal-plane mechanical shutter, electronic front-curtain shutter (in mirror-up release mode)
Shutter speed	1/8000 to 30 s in steps of 1/3, 1/2 or 1 EV, Bulb, Time, X250 **M* mode: 4, 5, 8, 10, 15, 20, 30, 60, 120, 180, 240, 300, 600 or 900 seconds shutter speed, and Bulb and Time settings are available**
Flash sync speed	X=1/250 s; synchronizes with shutter at 1/320 s or slower (flash range drops at speeds between 1/250 and 1/320 s)
Release modes	S (single frame), C_L (continuous low speed), C_H (continuous high speed), Q (quiet shutter-release), Q_C (quiet continuous shutter-release), ⏲ (self-timer), M_{UP} (mirror up)
Frame advance rate	• With EN-EL15 batteries (FX/5:4) C_L: Approx. 1 to 5 fps, C_H: Approx. 5 fps, Q_C: Approx. 3 fps (DX/1.2×) C_L: Approx. 1 to 6 fps, C_H: Approx. 6 fps, Q_C: Approx. 3 fps • Other power sources (FX/5:4) C_L: Approx. 1 to 5 fps, C_H: Approx. 5 fps, Q_C: Approx. 3 fps (1.2×) C_L: Approx. 1 to 6 fps, C_H: Approx. 6 fps, Q_C: Approx. 3 fps (DX) C_L: Approx. 1 to 6 fps, C_H: Approx. 7 fps, Q_C: Approx. 3 fps
Self-timer	2 s, 5 s, 10 s, 20 s; 1 to 9 exposures at intervals of 0.5, 1, 2 or 3 s
Exposure metering	TTL exposure metering using 91K-pixel RGB sensor
Metering method	• Matrix: 3D color matrix metering III (type G, E and D lenses); color matrix metering III (other CPU lenses); color matrix metering available with non-CPU lenses if user provides lens data • Center-weighted: Weight of approx. 75% given to 12-mm circle in center of frame; diameter of circle can be changed to 8, 15 or 20 mm, or weighting can be based on average of entire frame (non-CPU lenses use 12-mm circle) • Spot: Meters 4-mm circle (about 1.5% of frame) centered on selected focus point (on center focus point when non-CPU lens is used) • Highlight-weighted: Available with type G, E and D lenses (equivalent to center-weighted when other lenses are used)
Metering range	• Matrix, center-weighted, or highlight-weighted metering : 0 to 20 EV • Spot metering: 2 to 20 EV (**ISO 100 equivalent**, f/1.4 lens, 20°C/68°F)
Exposure meter coupling	Combined CPU and AI
Exposure modes	Programed auto with flexible program (P); shutter-priority auto (S); aperture-priority auto (A); manual (M); **Long-exposure manual (M*) mode**
Exposure compensation	-5 to +5 EV in increments of 1/3, 1/2 or 1 EV
Exposure bracketing	2 to 9 frames in steps of 1/3, 1/2, 2/3 or 1 EV; 2 to 5 frames in steps of 2 or 3 EV
Exposure lock	Luminosity locked at detected value with AE-L/AF-L button
ISO sensitivity (Recommended Exposure Index)	ISO **200** to 12800 in steps of 1/3, 1/2 or 1 EV; can also be set to approx. 0.3, 0.5, 0.7 or 1 EV (ISO **100** equivalent) below ISO **200** or to approx. 0.3, 0.5, 0.7, 1 or 2 EV (ISO 51200 equivalent) above ISO 12800; auto ISO sensitivity control available
Active D-Lighting	Can be selected from auto, extra high, high, normal, low or off
ADL bracketing	2 frames using selected value for one frame or 3 to 5 frames using preset values for all frames

Autofocus	Nikon Advanced Multi-CAM 3500FX autofocus sensor module with TTL phase detection, fine-tuning, 51 focus points (including 15 cross-type sensors; f/8 supported by 11 sensors), and AF-assist illuminator (range approx. 0.5 to 3 m/1 ft 8 in. to 9 ft 10 in.)
Detection range	-2 to +19 EV (**ISO 100 equivalent**, 20°C/68°F)
Lens servo	• Autofocus (AF): Single-servo AF (AF-S); continuous-servo AF (AF-C); predictive focus tracking automatically activated according to subject status • Manual focus (M): Electronic rangefinder can be used
Focus point	Can be selected from 51 or 11 focus points
AF-area modes	Single-point AF, 9-, 21- or 51-point dynamic-area AF, 3D-tracking, group-area AF, auto-area AF
Focus lock	Focus can be locked by pressing shutter-release button halfway (single-servo AF) or by pressing AE-L/AF-L button
Built-in flash	Manual pop-up with button release and a guide number of approx. 12/39, 12/39 with manual flash (m/ft, ISO 100, 20°C/68°F)
Flash control	TTL: i-TTL flash control using 91K-pixel RGB sensor is available with built-in flash; i-TTL balanced fill-flash for digital SLR is used with matrix, center-weighted, and highlight-weighted metering, standard i-TTL flash for digital SLR with spot metering
Flash modes	Front-curtain sync, slow sync, rear-curtain sync, red-eye reduction, red-eye reduction with slow sync, slow rear-curtain sync, off; auto FP high-speed sync supported
Flash compensation	-3 to +1 EV in increments of 1/3, 1/2 or 1 EV
Flash bracketing	2 to 9 frames in steps of 1/3, 1/2, 2/3 or 1 EV; 2 to 5 frames in steps of 2 or 3 EV
Flash-ready indicator	Lights when built-in flash or optional flash unit is fully charged; blinks after flash is fired at full output
Accessory shoe	ISO 518 hot-shoe with sync and data contacts and safety lock
Nikon Creative Lighting System (CLS)	Nikon CLS supported; commander mode option available
Sync terminal	ISO 519 sync terminal with locking thread
White balance	Auto (2 types), incandescent, fluorescent (7 types), direct sunlight, flash, cloudy, shade, preset manual (up to 6 values can be stored, spot white balance measurement available during live view), choose color temperature (2500 K to 10000 K); all with fine-tuning
White balance bracketing	2 to 9 frames in steps of 1, 2 or 3
Live view modes	Live view photography (still images), movie live view (movies)
Live view lens servo	• Autofocus (AF): Single-servo AF (AF-S); full-time servo AF (AF-F) • Manual focus (M)
Live view AF-area modes	Face-priority AF, wide-area AF, normal-area AF, subject-tracking AF
Live view autofocus	Contrast-detect AF anywhere in frame (camera selects focus point automatically when face-priority AF or subject-tracking AF is selected)
Movie metering	TTL exposure metering using main image sensor
Movie metering method	Matrix, center-weighted, or highlight-weighted
Frame size (pixels) and frame rate	• 1920 × 1080; 60p (progressive), 50p, 30p, 25p, 24p • 1280 × 720; 60p, 50p Actual frame rates for 60p, 50p, 30p, 25p, and 24p are 59.94, 50, 29.97, 25, and 23.976 fps respectively; all options support both high and normal image quality
Movie file format	MOV
Video compression	H.264/MPEG-4 Advanced Video Coding
Audio recording format	Linear PCM
Audio recording device	Built-in or external stereo microphone; sensitivity adjustable
Movie ISO sensitivity	• Exposure modes P, S and A: Auto ISO sensitivity control (ISO **200** to Hi 2) with selectable upper limit • Exposure mode M: Auto ISO sensitivity control (ISO **200** to Hi 2) available with selectable upper limit; manual selection (ISO **200** to 12800 in steps of 1/3, 1/2, or 1 EV); can also be set to approx. 0.3, 0.5, 0.7, 1, or 2 EV (ISO 51200 equivalent) above ISO 12800
Other movie options	Index marking, time-lapse photography
Monitor	8-cm/3.2-in., approx. 1229 k-dot (VGA; 640 × RGBW × 480 = 1,228,800 dots) TFT monitor with 170° viewing angle, approx. 100% frame coverage, and brightness adjustment
Playback	Full-frame and thumbnail (4, 9 or 72 images) playback with playback zoom, movie playback, photo and/or movie slide shows, histogram display, highlights, photo information, location data display, auto image rotation
USB	SuperSpeed USB (USB 3.0 Micro-B connector); connection to built-in USB port is recommended
HDMI output	Type C HDMI connector
Audio input	Stereo mini-pin jack (3.5-mm diameter; plug-in power supported)
Audio output	Stereo mini-pin jack (3.5-mm diameter)
Ten-pin remote terminal	Can be used to connect optional remote control, optional WR-R10 (requires WR-A10 Adapter) or WR-1 Wireless Remote Controller (**M* mode not supported**), GP-1/GP-1A GPS Unit, or GPS device compliant with NMEA0183 version 2.01 or 3.01 (requires optional MC-35 GPS Adapter Cord and cable with D-sub 9-pin connector)
Supported languages (may differ by country or area)	Arabic, Bengali, Bulgarian, Chinese (Simplified and Traditional), Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Marathi, Norwegian, Persian, Polish, Portuguese (Portugal and Brazil), Romanian, Russian, Serbian, Spanish, Swedish, Tamil, Telugu, Thai, Turkish, Ukrainian, Vietnamese
Battery	One EN-EL15 Rechargeable Li-ion Battery
Battery pack	Optional MB-D12 Multi-Power Battery Pack with one EN-EL15/EN-EL18a*/EN-EL18* Rechargeable Li-ion Battery or eight R6/AA-size alkaline, Ni-MH or lithium batteries * Available separately; Requires optional BL-5 Battery Chamber Cover
AC adapter	EH-5b AC Adapter; requires EP-5B Power Connector (available separately)
Tripod socket	1/4 in. (ISO 1222)
Dimensions (W × H × D)	Approx. 146 × 123 × 81.5 mm/ 5.8 × 4.9 × 3.3 in.
Weight	Approx. 980 g/2 lb 2.6 oz with battery and SD memory card but without body cap; approx. 880 g/1 lb 15.1 oz (camera body only)
Operating environment	Temperature: 0 to 40°C/32 to 104°F; humidity: 85% or less (no condensation)

• Images in viewfinders, on LCDs and monitors shown in this material are simulated.

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer. March 2015

WARNING **TO ENSURE CORRECT USAGE, READ MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT. SOME DOCUMENTATION IS SUPPLIED ON CD-ROM ONLY.**

Visit the Nikon Europe website at: **www.europe-nikon.com**

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