

## Speed, Resolution, and More Speed



The 716 has the same great features as the i-SPEED 7 Series: 12-bit mono/36-bit high resolution images, external swappable 1TB SSD's, i-FOCUS, i-CHEQ, and up to 288 GB of optional memory. The i-SPEED 716 features 16 gigapixels per second throughput along with optional IRIG time code and rugged environmental package.

Each i-SPEED 716 also comes with the i-SPEED Software Suite 2.0. Upgrade to the premium bundle for advanced control, analysis, editing and playback. When your application demands exceptional performance from your camera, the i-SPEED 716 is the ideal partner.



**i-SPEED 716R  
shown in heavy  
duty, rugged  
environmental  
package**

Choose from the sleek new instrumentation package or elect to upgrade your camera to the high-G rated rugged package with its environment resistant aluminum casing.



**Data can be  
transferred by  
fast SSD or Ethernet  
to a PC using the  
i-SPEED Software  
Suite 2.0**

## FEATURES + OPTIONS

- High-resolution 2048x1536 pixel sensor
- Full resolution to 5,315 frames/second
- 1080p resolution at 7,960 frames/second
- Up to 288 GB of on-board memory for long recordings
- Internal or external SSD drive for fast data transfer
- Ultra-fast 16 GP/sec throughput
- Microlens sensor for exceptional light sensitivity
- Wide Dynamic Range recording
- Global electronic shutter to 1  $\mu$ s
- 1 hour battery life
- Compatible with all Nikon F and Canon EF mount lenses
- Maximum frame rate – 1,000,000 fps
- Flexible frame synchronization from 10 Hz to 200 kHz
- Environmentally rugged package available
- 32 point integrated real-time health monitoring system

## IMAGER

<b>Sensor type</b>	Custom CMOS
<b>Sensor resolution</b>	2048 x 1536 pixel
<b>Sensor size</b>	27.972 mm x 20.736 mm
<b>Sensor diagonal</b>	34.82 mm
<b>Pixel size</b>	13.5 µm
<b>Bit depth</b>	12 bit (36 bit color)
<b>ISO (12232-2:2006, D, sat)</b>	Mono 5,000 / 40,000 (max) Color 1,800 / 14,400 (max)
<b>Maximum frame rate</b>	1,000,000 fps
<b>Shutter type</b>	Global Exposure
<b>Shutter time, standard</b>	1 µs minimum
<b>Shutter time, fast mode</b>	289 ns
<b>WDR</b>	Wide Dynamic Range

## SYNCHRONIZATION and CAPTURE

<b>Trigger</b>	TTL T0 to 0-100%
<b>Trigger modes</b>	Circular, ROC, BROCC
<b>Sync</b>	10 Hz - 200 kHz
<b>Luminance histogram</b>	Iris setting aid tool
<b>i-CHEQ 360</b>	Camera status LEDs
<b>i-FOCUS</b>	Focusing aid tool
<b>i-EXPOSE</b>	High/low exposure highlight
<b>Control</b>	PC or CDUe
<b>IRIG input</b>	IRIG – B to sub 1 µs
<b>IRIG sync</b>	Camera sync to IRIG
<b>Internal memory</b>	36 GB standard, upgrade to 288 GB

## PHYSICAL and ENVIRONMENTAL

<b>Dimensions</b>	
<b>Instrumentation package</b>	
inches	14.3 (W) x 6.2 (H) x 6.2 (L)
mm	363 (W) x 157 (H) x 154 (L)
<b>Rugged package</b>	
inches	14.75 (W) x 6.0 (H) x 5.75 (L)
mm	374 (W) x 150 (H) x 143.5 (L)
<b>Weight</b>	18.7 lb (8.5 kg) with battery
<b>Input voltage</b>	12-36 V
<b>Power consumption</b>	150 W Nominal, 200 W Max
<b>Mounting</b>	¼x20 and 3/8x16 tripod plate
<b>Battery</b>	2x 14.4 V 90 Wh
<b>Battery life</b>	1 hour
<b>Lens mount</b>	Custom, swappable lens plate
<b>EMC</b>	EN55032-A, EN55024
<b>Safety</b>	BS EN61010-1 (camera), IEC60950 (PSU)
<b>CE marking</b>	EMC Directive (Camera), EMC Directive, LV Directive (PSU)
<b>Lead free</b>	RoHS Directive
<b>WEEE</b>	Compliant
<b>IP rating</b>	IP 20
<b>Temperature °F</b>	32 to 104 operation, -4 to 140 storage
<b>Temperature °C</b>	0 to 40 operation, -20 to 60 storage
<b>Pressure</b>	71 kpa to 106 kpa
<b>Relative humidity</b>	95% at 104°F non-condensing
<b>G-shock, Instrumentation package</b>	10 G
<b>G-shock, Rugged package</b>	30 G @ 11 ms IEC 68-2-27 Ea, 30 G @ 2 ms IEC 68-2-29 Eb
<b>Power input connector</b>	6 pin Lemo
<b>Trigger input</b>	BNC 75 Ω
<b>Feature connector</b>	18 pin Lemo, trigger in / sync / sync out / exposure out / remote power

## CONNECTIVITY

<b>Video outputs</b>	2x HD-SDI, HDMI
<b>USB</b>	USB 3
<b>Network</b>	1 Gb RJ45
<b>Video</b>	AVI (compressed or uncompressed)
<b>Image sequence</b>	TIFF, JPG, RAW
<b>Ethernet control</b>	1 Gb
<b>Remote control</b>	Via supplied software

## PC SOFTWARE

<b>Standard control</b>	Control ONE
<b>Premium control</b>	Control MULTI-DAQ
<b>Editing</b>	i-SPEED Movie Maker
<b>Analysis</b>	ProAnalyst® Lite by Xcitem
<b>Viewer</b>	i-SPEED Viewer
<b>Utilities</b>	i-SPEED Lens Calculator, i-SPEED Viewer
<b>Software Developers Kit</b>	C++, LabView
<b>Synchronized data acquisition</b>	USB DAQ, 8 options

## PURCHASING OPTIONS

<b>CDUe</b>	Portable Control Unit
<b>Sensor</b>	Color / Mono
<b>Memory</b>	36 GB (std) / 72 GB / 96 GB / 144 GB / 288 GB
<b>Shutter time</b>	1 µs (std) / 289 ns (subject to export restrictions)
<b>Internal SSD</b>	500 GB / 1 TB
<b>External SSD</b>	250 GB / 500 GB / 1 TB
<b>Lens mounts</b>	F mount (Nikkor D) / F mount (Nikkor G) C mount / EF mount
<b>Package type</b>	Instrumentation / Rugged
<b>Warranty</b>	1 yr (std) / 2 yr / 3 yr
<b>Internal Batteries</b>	Set of 2 batteries

## FRAME RATES, RESOLUTION and DURATION

FPS	Resolution	36GB	72GB	96GB	144GB	288GB
1,000	2048x1536	8.1 sec	16.2 sec	21.6 sec	32.4 sec	64.8 sec
2,000	2048x1536	4.1 sec	8.1 sec	10.8 sec	16.2 sec	32.4 sec
5,000	2048x1536	1.6 sec	3.2 sec	4.3 sec	6.5 sec	12.9 sec
5,315	2048x1536	1.5 sec	3.0 sec	4.1 sec	6.1 sec	12.2 sec
7,500	1736x1284	1.5 sec	3.1 sec	4.1 sec	6.2 sec	12.3 sec
7,960	1920x1080	1.5 sec	3.1 sec	4.1 sec	6.1 sec	12.2 sec
10,000	1512x1098	1.6 sec	3.1 sec	4.1 sec	6.2 sec	12.4 sec
15,000	1232x888	1.6 sec	3.1 sec	4.2 sec	6.3 sec	12.6 sec
20,000	1064x762	1.6 sec	3.2 sec	4.2 sec	6.4 sec	12.7 sec
30,000	840x624	1.6 sec	3.3 sec	4.4 sec	6.6 sec	13.1 sec
50,000	672x456	1.7 sec	3.4 sec	4.5 sec	6.7 sec	13.4 sec
100,000	672x216	1.8 sec	3.6 sec	4.7 sec	7.1 sec	14.2 sec
200,000	672x96	2.0 sec	4.0 sec	5.3 sec	8.0 sec	16.0 sec
500,000	672x24	3.2 sec	6.4 sec	8.5 sec	12.8 sec	25.6 sec
750,000	336x24	4.3 sec	8.5 sec	11.4 sec	17.0 sec	34.1 sec
1,000,000	336x24	3.2 sec	6.4 sec	8.5 sec	12.8 sec	25.6 sec

Note: Other resolutions and speeds are available.



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