

# Convergent Design's nanoFlash versus Other Video Recorders

The nanoFlash has pioneered the market with innovative professional, camera mountable, video recorders. When considering the purchase of a compact sized video recorder here are some things to consider.

1. The nanoFlash is field proven, over 4,000 have been built and a high percentage are used for professional applications.
2. The nanoFlash handles extreme conditions: Extreme Cold (-75 F, -60C), Extreme Heat (185F, 85C), Extreme Vibration (Helicopters), Extreme G-Load (F-16, F/A-18, F22, and F35), and Extreme Altitude (99,200 feet, 30,236 meters).
3. The nanoFlash is 100% silent, has no fan, and is very rugged. The nanoFlash can achieve 212F, 100C internal temperature and still work perfectly.
4. The nanoFlash will not interfere with capturing audio.
5. Convergent Design implemented many new features based on customer's requests via free firmware updates.
6. The nanoFlash has many features that many of the other recorders lack. One benefits from all of the features that have been added over time, features that some of the new recorders do not have, or may never have.
7. The following are features that the nanoFlash has and other recorders may not have.
  - a. Proper "True Progressive" recording. The nanoFlash can accept and record 1080psf23.976 (23.98) and record it as true progressive. Almost all cameras output "PSF" (Progressive Segmented Frames) and not "True Progressive". Recording True Progressive makes editing easier.
  - b. 3:2 Pulldown Removal.
  - c. "True" Frame Rates, 1080i60, 1080p30, 1080p24, 720p60, 720p24, and 720p30.
  - d. Support for HDMI and HD/SD-SDI inputs and outputs; both outputs are active full time.
  - e. On-Screen Tally Bar for confidence that one is actually recording. Confidence Beeps are provided via the headphone.
  - f. Time-Lapse, allowing any user specified time-lapse interval from 1 second up to over one frame per 24 hours (or more).
  - g. Pre-Record Buffer, so one can trigger the nanoFlash after something has occurred and still get the footage. This is great for shooting wildlife, lightning and live events.
  - h. Over and Under-Cranking, for slow and quick motion.
8. Support for Card Spanning, Long Record Times, "Hot Swapping", Cost of Media.
  - a. When one card fills up, the nanoFlash will automatically and seamlessly advance to the next card without loss of a video frame or audio sample.
  - b. The nanoFlash can record in Broadcast Quality for approximately 10 hours and 40 minutes, without using "Hot Swapping".  
With "Hot Swapping" one can record as long as they have formatted CompactFlash cards.  
Long Recording time is very beneficial for covering breaking news, events, and for recording at high bit-rates.  
Being able to record for such a long time is a great relief for professional camera operators and for those recording all-day events.
  - c. The benefits of Card Spanning should not be minimized. Without the ability to automatically record from one card to another, it is typically impractical to fill up each card. One has to worry if the next clip will fit on the card or not.  
Thus one cannot achieve the full capacity of any one card.  
With some other recorders, once a card gets full, one has to manually switch to another card, then restart recording.
  - d. With the nanoFlash, one can use low to moderate cost cards. Even moderate cost 128 GB cards may be used.  
With some of other recorders, one needs very expensive 600x CompactFlash cards.
9. Image Quality.
  - a. Our Sony XDCam Codec is widely known for its very low noise images.
  - b. The nanoFlash gives you the bit-rate you select, regardless of your frame rate.  
For example, in Prores HQ (typically described as 220 Mbps), one gets only 88 Mbps for 720p24, not 220 Mbps, and 176 Mbps for 1080p24; while the nanoFlash gives you the actual 220 Mbps, or even 280 Mbps you selected.  
There are sound technical reasons why the nanoFlash footage looks so good.
10. Size and Weight.
  - a. The nanoFlash is easily camera mountable, in a wide variety of positions.
  - b. It is lower in weight than any other professional recorder.
  - c. Expensive mounting kits are not needed with the nanoFlash.
11. Power
  - a. The nanoFlash draws under 6 watts of power in all modes, and approximately 0.2 watts in standby.
  - b. Low cost, small, lightweight, low cost, 2-cell Lithium-Ion batteries can power the nanoFlash for approximately 3 hours.
  - c. Most other recorders draw substantially more power, thus adding cost and weight and making the unit far less desirable for field applications.

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12. Acceptance and Approvals.
  - a. The nanoFlash has gained full approvals from The BBC and National Geographic.
  - b. It is also used by Discovery, CBS, NBC-Universal, and for ABC productions, as well as by many production houses.
  - c. It was used for the filming of action sequences of "Battle: Los Angeles", a large budget Columbia Pictures Film and for all of the filming "I Will Follow".
13. Versatility.
  - a. The nanoFlash has extended the life of many tape-based cameras.
  - b. It has added 1080p23.976, 1080p24, 1080p25, 1080p29.97 and 1080p30 to the Panasonic HDX900, thus greatly enhancing the versatility of this camera.
  - c. The nanoFlash can easily, via a menu selection, create files for the Mac world, or the PC world. A free utility to convert MOV (Quicktime) to MXF is provided. And the Sony provides a free utility to MXF to MOV.
  - d. ProRes Only recorders are far less versatile.
  - e. The nanoFlash offers the following bit-rates:  
SD: 3,4,5,6,7,8,9, IMX 30, IMX 40, and IMX 50  
HD: 4:2:0 18 and 35 Mbps  
HD: 4:2:2 Long-GOP 50, 80, 100, 140 and 180 Mbps  
HD: 4:2:2 I-Frame Only 100, 140, 180, 220 and 280 Mbps
  - f. Up to 8 Channels of audio embedded in HD-SDI are supported, with each channel being 24-Bit/48K. Up to 2 Channels of analog audio, Mic or Line, are also supported.
14. Boot-up Time and Backup Power Options.
  - a. The nanoFlash is ready to record in a very short period of time. No extended boot-up time required.
  - b. When a battery has to be replaced, the nanoFlash will reboot quickly.
  - c. Dual Power is also available for the nanoFlash.  
For example, one can run on AC Power with battery back-up in case the AC power is interrupted. The backup battery will automatically be recharged when AC power is available and power the unit for approximately 3 hours without AC Power.  
Also, one can run on camera battery power, such as Anton Bauer or IDX, with backup battery power to allow the files to be closed automatically.
15. Format Time.

The nanoFlash formats cards in a very short period of time, under 15 seconds, for two 128 GB CompactFlash cards.
16. Ease of Operation.
  - a. The nanoFlash does not require any special "Mount" or "Dismount" of the CompactFlash cards.
  - b. There are no special functions required to remove a card from the nanoFlash, just stop recording first.
  - c. One of the other recorders requires a special procedure before a card can be removed, otherwise a procedure has to be performed, on an external computer, to recover the otherwise lost footage.
17. Special Applications.
  - a. Our Gemini 4:4:4 is ideal, for some, for use with the Sony PMW-F3.
  - b. If one is not going to upgrade the F3 with the S-Log option, the nanoFlash is a very workable solution. The F3 is a very low noise camera, and when coupled with the nanoFlash, the images are just stunning, according to outside experts. This very low noise camera, plus the very low noise codec of the nanoFlash combine to create these magical images.
  - c. Of course, if one wants to record S-Log, or full uncompressed, the Gemini 4:4:4 is a great solution.
18. Availability.
  - a. The nanoFlash is available now, and it is not "Version 1.0".
  - b. It is a field proven, mature, reliable recorder, yet we will be adding more features over time.
19. Customer Satisfaction.

The nanoFlash has achieved a very high degree of customer acceptance and loyalty. Just ask any owner or user.
20. Customer Support  
Convergent Design provides live, knowledgeable customer support 24/7.