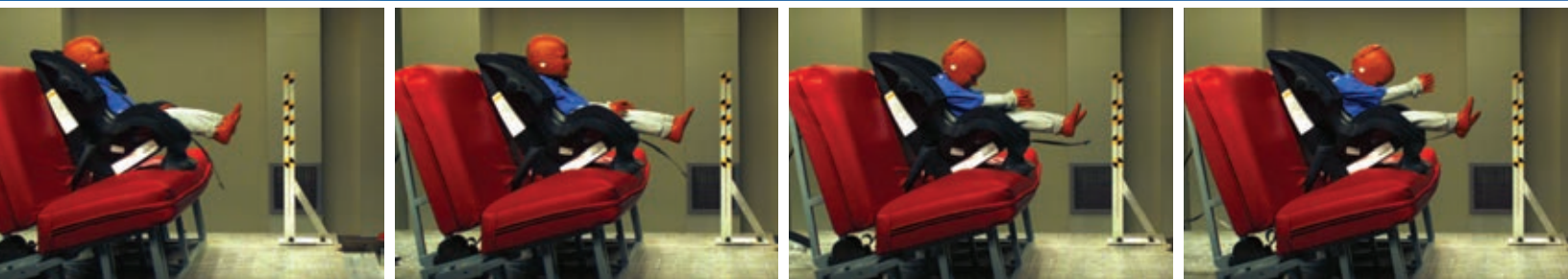# FASTCAM SA3
HIGH-G HIGH SPEED VIDEO SYSTEM

A rugged, megapixel High-Speed imaging system for General Application and Automotive Safety Test recording

2,000fps operation at 1024 x 1024 pixels

Designed referring to SAE-J211 to provide ruggedness and reliability, the Photron FASTCAM SA3 offers high performance recording for a broad range of applications in research and development and automotive safety testing.

Like the award winning FASTCAM MH4 multi-head camera system the FASTCAM SA3 ensures system stability under High-G conditions and long term system reliability.

The FASTCAM SA3 offers remote control through user selectable camera controls on rear panel, Gigabit Ethernet communications or through optional RS422 keypad with built-in 5" LCD display.

The FASTCAM SA3 provides exceptional light sensitivity, image quality and color fidelity through genuine 12-bit ADC, with extra record time provided by selecting 8-bit record mode.

Two FASTCAM SA3 models are available, Model 60K and Model 120K. Both systems offer higher frame rates at reduced image resolution and two microsecond global shutter.

Benefits

- Performance:

  FASTCAM SA3 Model 60K
  1024 x 1024 pixel resolution at frame rates up to 1,000 fps, and at reduced resolution up to 60,000 fps

  FASTCAM SA3 Model 120K
  1024 x 1024 pixel resolution at frame rates up to 2,000 fps, and at reduced resolution up to 120,000 fps

- User selectable Variable Framerate / Resolution

- Suitable for operation in HiG environments. Operation tested to 100G, 10ms, 6 axis

- 17µm pixel size to ensure high light sensitivity for demanding frame rate or low light applications

- 2µs global shutter selectable independent of frame rate.

- Composite video output for real time monitoring during set up, recording and playback

- Optional remote keypad control with integrated viewfinder

- 2GB, 4GB or 8GB memory options

- 8-bit recording mode increases record duration by 50%

- High performance Gigabit Ethernet interface

- Optional battery backup to protect data in the event of unexpected power loss (Pictured below)

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FASTCAM SA3
HIGH SPEED VIDEO SYSTEM

TARGET APPLICATIONS:
- Onboard vehicle impact testing
- Military test ranges where a sealed unit is beneficial
- Particle Image Velocimetry (PIV)
- Digital Image Correlation (DIC)
- Biomechanics

Specifications: Frame Rate / Resolution Table

FRAME RATE (fps)	MAXIMUM RESOLUTION				RECORD DURATION (12-BIT)											
	Model 60K		Model 120K		TIME (Sec.)						FRAMES					
					Model 60K			Model 120K			Model 60K			Model 120K		
	Horizontal	Vertical	Horizontal	Vertical	2GB	4GB	8GB	2GB	4GB	8GB	2GB	4GB	8GB	2GB	4GB	8GB
1,000	1,024	1,024	1,024	1,024	1.36	2.72	5.45	1.36	2.72	5.45	1,361	2,726	5,457	1,361	2,726	5,457
1,500	896	736	1,024	1,024	1.44	2.89	5.78	0.90	1.81	3.63	2,164	4,335	8,677	1,361	2,726	5,457
2,000	768	608	1,024	1,024	1.52	3.06	6.12	0.68	1.36	2.72	3,057	6,123	12,255	1,361	2,726	5,457
2,500	640	544	896	896	1.64	3.28	6.57	0.71	1.42	2.85	4,100	8,212	16,436	1,778	3,561	7,127
3,000	512	512	896	736	1.81	3.63	7.27	0.72	1.44	2.89	5,445	10,906	21,829	2,164	4,335	8,677
5,000	384	352	640	544	2.11	4.23	8.46	0.82	1.64	3.28	10,560	21,152	42,335	4,100	8,212	16,436
6,000	384	288	512	512	2.15	4.30	8.62	0.90	1.81	3.63	12,907	25,852	51,743	5,445	10,906	21,829
7,500	384	224	512	416	2.21	4.43	8.87	0.89	1.78	3.58	16,595	33,239	66,527	6,701	13,423	26,866
10,000	256	192	384	352	2.90	5.81	11.64	1.05	2.11	4.23	29,041	58,168	116,423	10,560	21,152	42,335
15,000	256	112	384	224	3.31	6.64	13.30	1.10	2.21	4.43	49,785	99,718	199,582	16,595	33,239	66,527
20,000	256	80	256	192	3.48	6.98	13.97	1.45	2.90	5.82	69,700	139,605	279,415	29,041	58,168	116,423
25,000	256	64	256	144	3.48	6.98	13.97	1.54	3.10	6.20	87,125	174,506	349,269	38,722	77,558	155,230
30,000	256	48	256	112	3.87	7.75	15.52	1.65	3.32	6.65	116,167	232,675	465,692	49,785	99,718	199,582
50,000	384	16	256	64	4.64	9.30	18.62	1.74	3.49	6.98	232,334	465,351	931,384	87,125	174,506	349,269
60,000	128	16	256	48	11.61	23.26	46.56	1.93	3.87	7.76	697,002	1,396,053	2,794,154	116,167	232,675	465,692
75,000	-	-	256	32	-	-	-	2.32	4.65	9.31	-	-	-	174,250	349,013	698,538
100,000	-	-	384	16	-	-	-	2.32	4.65	9.31	-	-	-	232,334	465,351	931,384
120,000	-	-	128	16	-	-	-	5.80	11.63	23.28	-	-	-	697,002	1,396,053	2,794,154

Sensor — 12-bit ADC (Bayer system color, single sensor) with 17µm pixel size

Shutter — Global electronic shutter from 16.7ms to 2µs independent of frame rate

Lens Mount — Interchangeable F-mount and C-mount using supplied adapters (Optional High-G block mount available)

Extended Dynamic Range — Selectable in twenty steps (0 to 95% in 5% increments) to prevent pixel over-exposure

Memory — 2GB (standard), 4GB (optional) and 8GB (optional)

Video Outputs — NTSC/PAL composite VBS (BNC). Ability to zoom, pan and scroll within image via keypad (option). Live video during recording

Camera Control — Through optional keypad with integrated viewfinder and Gigabit Ethernet or RS-422

User Preset Switch — User selectable camera function control mounted on the camera's rear panel

Low Light Mode — Low light mode for simple camera adjustment when working in low ambient light, high frame rate or short exposure modes

Triggering — Selectable positive or negative TTL 5Vp-p or switch closure

Trigger Delay — Programmable delay on selected input and output triggers, 100ns resolution

Timing — Internal clock or external source

IRIG Time Code — IRIG/GPS timing is recorded in real time on every frame

Event Markers — Ten user entered event markers mark specific events within the image sequence in real time. Immediately accessible through software

Variable Framerate/Resolution — User selectable Variable Framerate/Resolution function adjustable in 128 x 16 pixel steps

Selectable Recording Bit Depth — User selectable 12-bit (high-dynamic range) or 8-bit (50% frame increase) recording mode

Trigger Modes — Start, End, Center, Manual, Random, Random Reset

Saved Image Formats — JPEG, AVI, TIFF, BMP, RAW, PNG, MOV, and FTIF. Images can be saved with or without image or comment data

Data Display — Frame Rate, Shutter Speed, Trigger Mode, Date or Time, Status (Playback/Record), Real Time, Frame Count, Resolution and LUT

Partitioning — Up to 8 memory partitions may be set by the user

High-G — Tested to 100G, 10ms, six-axis

Operating Temperature — 0-40 degrees C (32-104 degree F)

Mounting — 1 x 1/4-20 UNC, 6 x M5 on all four sides

Dimensions — 120mm (4.72")H x 120mm (4.72")W x 215.8mm (8.50")D *excluding protrusions

Weight — 9.48 lbs (4.3kg)

Power Requirements — 100V-240V AC ~ 1.5A, 50-60Hz optional DC operation 22-32VDC, 60VA

Specifications subject to change without notice