

Fastcam-SA 1

FASTCAM-SA1: High-Speed Video System

Next generation CMOS sensor technology providing 5,400fps, at 1,024 x 1,024 pixels

The Photron FASTCAM-SA1 will meet the requirements of the most demanding applications in research and development due to its unrivaled sensitivity, frame rate and resolution.

This high specification will permit the SA1 to be applied to areas of research once dismissed as unsuitable for digital high-speed video.

Building on the Emmy award winning success of the Ultima APX range of systems a new sensor design improves sensitivity, image quality and color reproduction.

The Fastcam SA1 camera delivers mega pixel resolution at 5,400fps and a maximum frame rate of over 650,000fps.

Available with one optional microsecond shutter and inter-frame time

Target applications include:

- Ballistics
- Materials research
- Inkjet
- Cavitation
- Defense
- Aerospace
- Fluid dynamics
- PIV



**Now with
675K fps top
speed and
32GB memory
option**

FEATURES

- ❑ 1024 X 1024 pixels @ 5,400fps
- 720 X 576 pixels @ 13,500 fps
- 640 x 480 pixels @ 18,750fps
- 512 X 512 pixels @ 20,000fps
- 256 x 256 pixels @ 67,500fps
- 128 X 128 pixels @ 180,000 fps
- 64 x 16 pixels @ 675,000 fps

- ❑ Available with three memory options:
8 GBytes, 16GBytes or 32 GBytes

- ❑ Variable Region of Interest (ROI)

- ❑ Capture 12-bit uncompressed data

- ❑ 20 μ m pixels ensure best light sensitivity for demanding high-speed or low light applications

- ❑ Global shutter to 2 μ s can be set independent of selected frame rate. Optional one microsecond (1 μ s) shutter available

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

- ❑ Phase-lock to IRIG or GPS time code

- ❑ Remote keypad control with integrated viewfinder

- ❑ Gigabit Ethernet interface

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Frame rate / resolution table:

Variable frame rate steps 64 x 16, includes:

Vertical resolution

	1,024	896	768	640	512	384	256	128	64	48	32	16	
Horizontal resolution	1,024	5,400	6,250	7,500	9,000	11,250	15,000	22,500	45,000	86,400	108,000	150,000	270,000
	896	6,250	7,500	8,000	10,000	12,500	16,000	25,000	50,000	93,750	120,000	168,750	281,250
	768	7,500	8,000	10,000	12,000	15,000	20,000	28,800	56,250	108,000	135,000	187,500	300,000
	640	8,000	10,000	11,250	13,500	16,000	22,500	33,750	62,500	120,000	150,000	216,000	337,500
	512	10,000	12,000	13,500	16,000	20,000	27,000	40,000	75,000	144,000	180,000	250,000	400,000
	384	12,500	15,000	16,000	20,000	25,000	33,750	50,000	93,750	168,750	216,000	281,250	450,000
	256	16,000	20,000	22,500	27,000	33,750	45,000	67,500	125,000	216,000	270,000	360,000	500,000
	128	27,000	30,000	36,000	40,000	50,000	67,500	100,000	180,000	300,000	360,000	450,000	600,000
	64	36,000	40,000	48,000	56,250	67,500	90,000	125,000	225,000	360,000	432,000	500,000	675,000

- Sensor 12-bit CMOS (Bayer system color, single sensor) with 20µm pixel
- Shutter Global electronic shutter from 16.7ms to 2µs independent of frame rate (Optional 1µs shutter)
- Lens Mount Interchangeable F-mount and C-mount using supplied adapters
- Extended dynamic range Ten presets (0 to 95%) prevent over-exposure of each pixel
- Memory 8GB (standard), 5400 frames (1024 x 1024 x 12-bits), 1.09 seconds
16GB (option), 10,800 frames (1024 x 1024 x 12 bits), 2.18 seconds
32GB (option, 21,600 frames (1024 x 1024 x 12 bits), 4.36 seconds
- Video Output # 1 NTSC/ PAL composite VBS (BNC). Ability to zoom, pan and tilt within image via keypad. Live during recording.
- Video Output # 2 SDI:D1 digital component 1 channel (BNC) Industry standard digital output, 720 x 576 PAL, 720 x 480 NTSC
- Camera Control Through keypad with integrated viewfinder and Gigabit Ethernet or RS-422A
- User preset switches 4 camera mounted user defined function buttons
- Low light mode Low light mode selection for simple camera adjustment when working in low ambient light, high frame rate or short exposure modes
- Triggering Selectable positive or negative TTL or switch closure
- Trigger delay Programmable delay on selected input and output triggers, 100ns resolution
- Timing Internal clock or external source such as IRIG or GPS
- Phase Lock Enables cameras to be synchronized precisely together to a master camera or external source such as IRIG/GPS
- Event markers Ten user –entered event markers mark specific events within the image sequence in real time. Immediately accessible through software
- Dual Speed Recording Enables the recording speed to be changed up or down by a factor of 2,4 or 8 during a recording
- Recording Modes Start, End, Center, Manual, Random, Random Reset, Random Center, Random Manual and Duals Speed Recording
- Saved Image Formats JPEG, AVI, TIFF (12bit), BMP, RAW, RAWW (12bit), PNG (12bit) and FTIF (12 bit). Images can be saved with or without image or comment data
- Data Display Frame Rate, Shutter Speed, Trigger Mode, Date or Time (can be switched), Status (Playback/Record), Real Time, Frame Count and Resolution
- Partitioning Up to 64 memory segments for multiple recordings in memory
- Data Acquisition Supports Photron MCDL and PCI DAQ cards
- Cooling Actively cooled
- Operating Temperature 0-40 degrees C (32-104F)
- Mounting 1x ¼-20 UNC, 1x 3/8-16 UNC, 6x M6
- Dimensions and Weight 286mm (11.26") L x 156mm (6.14") W x 191mm (7.52") H, weight 6.3kg (13.9lb)
- Power requirements 100V - 240V AC ~ 1.5A, 50-60Hz optional DC operation 22-36 VDC, 90VA

Specifications subject to change without notice.

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