

FASTCAM SA5

ULTRA HIGH-SPEED VIDEO SYSTEM



High-Speed Video System

Next generation CMOS sensor technology providing 7,500 fps, 1K x 1K pixels

The Photron FASTCAM SA5 will meet the requirements of the most demanding applications in research and development due to its unrivaled sensitivity, frame rate and resolution.

This high performance will permit the SA5 to be applied to areas of research once dismissed as unsuitable for digital high-speed imaging.

Building on the success of Photron's Emmy award winning high speed cameras our sensor design improves sensitivity, image quality and color reproduction.

The FASTCAM SA5 delivers mega-pixel resolution at 7,500 fps, an impressive maximum frame rate of 775,000 fps and a 1 microsecond exposure time. Optional one million fps and 369 ns shutter capabilities are available subject to export restrictions.

Target applications include:

- Materials research
- Ballistics
- Aerospace
- PIV
- Combustion
- Cavitation
- Fluid dynamics

Benefits

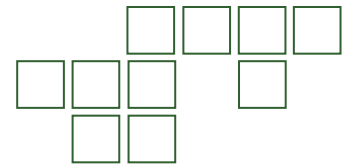
- Performance examples:
 - 1,024 x 1,000 pixels @ 7,500 fps
 - 512 x 512 pixels @ 25,000 fps
 - 256 x 256 pixels @ 87,500 fps
 - 128 x 128 pixels @ 262,500 fps
 - 128 x 24 pixels @ 775,000 fps
- Variable Region of Interest (ROI)
- Capture 12-bit uncompressed data
- 20µm pixels ensure best light sensitivity for demanding high-speed or low light applications
- Equivalent ISO light sensitivity 6,400 (monochrome), 1,600 (color) measured to ISO 12232
- Phase lock to IRIG/GPS
- Composite and SDI video output for real time monitoring during set up, recording and playback
- Optional remote keypad control with integrated viewfinder
- 8GB, 16GB or 32GB memory options
- Gigabit Ethernet interface

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Specifications: Partial Frame Rate / Recording Duration Table

FRAME RATE (fps)	MAXIMUM RESOLUTION Horizontal Vertical		MAXIMUM SHUTTER SPEED	RECORD DURATION (12-BIT)						
				TIME (Sec.)			FRAMES			
				8GB	16GB	32GB	8GB	16GB	32GB	
1,000	1,024	1,024	1 μ s 1/1,000,000 sec	5.46	10.92	21.84	5,457	10,918	21,841	
2,000	1,024	1,024		2.73	5.46	10.92	5,457	10,918	21,841	
4,000	1,024	1,024		1.36	2.73	5.46	5,457	10,918	21,841	
5,000	1,024	1,024		1.09	2.18	4.37	5,457	10,918	21,841	
7,000	1,024	1,024		0.78	1.56	3.12	5,457	10,918	21,841	
7,500	1,024	1,000		0.75	1.49	2.98	5,588	11,180	22,365	
9,300	1,024	800		0.75	1.50	3.01	6,985	13,975	27,956	
10,000	1,024	744		0.75	1.50	3.01	7,511	15,027	30,061	
15,000	960	528		0.75	1.51	3.01	11,289	22,587	45,182	
20,000	832	448		0.77	1.54	3.07	15,352	30,716	61,443	
30,000	768	320		0.78	1.55	3.11	23,284	46,586	93,189	
50,000	512	272		0.82	1.64	3.29	41,090	82,211	164,452	
75,000	320	264		0.90	1.81	3.61	67,737	135,523	271,097	
100,000	320	192		0.93	1.86	3.73	93,138	186,345	372,758	
150,000	256	144		1.03	2.07	4.14	155,230	310,575	621,264	
300,000	256	64		1.16	2.33	4.66	349,269	698,794	1,397,845	
420,000	128	64		1.66	3.33	6.66	698,538	1,397,589	2,795,690	
525,000	128	48		1.77	3.55	7.10	931,384	1,863,452	3,727,587	
775,000	128	24		2.40	4.81	9.62	1,862,769	3,726,904	7,455,175	
930,000	128	16		369 ns	3.00	6.01	12.02	2,794,154	5,590,357	11,182,762
1,000,000	64	16		1/2,712,000 sec	5.59	11.18	22.37	5,588,309	11,180,714	22,365,525

OPTION SUBJECT TO EXPORT LICENSE CONTROL RESTRICTIONS WHERE APPLICABLE

Sensor	12-bit ADC (Bayer system color, single sensor) with 20 μ m pixel	Event Markers	Ten user entered event markers mark specific events within the image sequence in real time. Immediately accessible through software
Shutter	Global electronic shutter from 16.7ms to 1 μ s independent of frame rate	Dual Speed Recording	Enables the recording speed to be changed up or down by a factor of 2, 4 or 8 during a recording
Lens Mount	Interchangeable F-mount and C-mount using supplied adapters	Trigger Modes	Start, End, Center, Manual, Random, Random Reset, Random Center, Random Manual and Duals Speed Recording
Extended Dynamic Range	Selectable in twenty steps (0 to 95% in 5% increments) to prevent pixel over-exposure	Saved Image Formats	JPEG, AVI, TIFF, BMP, RAW, PNG, MOV and FTIF. Images can be saved with or without image or comment data
Memory	8GB (standard: 5,457 frames @ maximum resolution) 16GB (option: 10,913 frames @ maximum resolution) 32GB (option: 21,841 frames @ maximum resolution)	Data Display	Frame Rate, Shutter Speed, Trigger Mode, Date or Time, Status (Playback/Record), Real Time, Frame Count and Resolution
Video Output 1	NTSC/PAL composite VBS (BNC). Ability to zoom, pan and tilt within image via keypad. Live video during recording	Partitioning	Up to 64 memory segments for multiple recording in memory
Video Output 2	SDI: D1 digital component 1 channel (BNC) industry standard digital output NTSC and PAL	Data Acquisition	Supports Photron MCDL and DAQ
Camera Control	Through optional keypad with integrated viewfinder and Gigabit Ethernet or RS-422	Cooling	Actively cooled
User Preset Switches	Four user selectable camera function controls mounted on the camera's rear panel	Operating Temperature	0 - 40 degrees C (32 - 104 degree F)
Low Light Mode	Low light mode drops the frame rate and shutter time to their maximum values, while maintaining other set parameters, to enable users to position and focus the camera	Mounting	1 x 1/4 - 20 UNC, 1 x 3/8 - 16 UNC, 6 x M6
Triggering	Selectable positive or negative TTL 5Vp-p or switch closure	Dimensions	165mm (6.50")H x 153mm (6.02")W x 242.5mm (9.55")D *excluding protrusions
Trigger Delay	Programmable delay on selected input and output triggers, 100ns resolution	Weight	6.2 kg (13.67 lbs)
Timing	Internal clock or external source	Power Requirements	100V-240V AC ~ 1.5A, 50-60Hz DC operation 18 - 36 V DC, 100VA
Phase Lock	Enables cameras to be synchronized precisely together to a master camera or external source, such as IRIG/GPS time codes		

Specifications subject to change without notice

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