FASTCAM SA2
HIGH-DEFINITION HIGH-SPEED VIDEO SYSTEM

2,048 x 2,048 (4MEGA pixel) resolution, developed for a broad range of applications including automotive safety testing, defense, fluid dynamics and materials research

The FASTCAM SA2 has been engineered to provide the optimum speed and resolution required for detailed observation and analysis of high speed events occurring in large spatial areas or fields of view. The 10 μm pixels lend themselves perfectly to micro analysis applications such as Particle Image Velocimetry (PIV) or Digital Image Correlation (DIC).

Areas where a high degree of motion analysis precision is demanded, such as automotive safety testing, weapons performance testing, fluid dynamics and solid mechanics will benefit from the combination of very high resolution, high framing rates, and typical Photron reliability.

The ability to operate at full HD resolution (1920 x 1080 pixels) at up to 2,000 fps will be a huge benefit to broadcast applications, including sports, nature documentaries, advertising and motion picture entertainment. The FASTCAM SA2 builds on Photron's Emmy award winning experience and is backed by the industry's best reputation for reliability and support.

As with every Photron high speed camera, ease of use and attention to details make the difference, with the FASTCAM SA2 supplied with the very easy to use Photron FASTCAM Viewer (PFV) software, or for those applications where a computer is not an option, an RS-422 optional keypad for camera control and image review.

Benefits

- Performance examples:
  - 2,048 x 2,048 pixels @ 1,080 fps
  - 1,920 x 1,080 pixels @ 2,000 fps
  - 1,024 x 1,024 pixels @ 3,200 fps

- Full HD resolution (1,920 x 1080 pixels) to 2,000 fps

- Incorporates Peltier temperature stabilized sensor and on-chip microlens array for optimum image quality and light sensitivity

- Available with three memory configurations:
  - 8GB for 1.29 seconds at 2,000 fps @ 1,920 x 1080 pixels
  - 16GB for 2.58 seconds at 2,000 fps @ 1,920 x 1080 pixels
  - 32GB for 5.17 seconds at 2,000 fps @ 1,920 x 1080 pixels

- Rear panel has dual HD-SDI and one RS-170 BNC outputs for real time monitoring during setup, recording and playback

- Photron FASTCAM Viewer (PFV) computer control via the Gigabit Ethernet port

- Four user selectable function buttons for easy rear panel control of camera

- Low-light mode for initial set up of camera position and focus

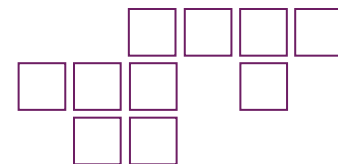- Monochrome or color sensor captures 12-bit (36-bit color) uncompressed data

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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.) 8GB Model	16GB Model	32GB Model	FRAMES 8GB Model	16GB Model	32GB Model
1,000	2,048	2,048		1.36	2.73	5.46	1,361	2,726	5,457
1,080	2,048	2,048		1.26	2.52	5.05	1,361	2,726	5,457
1,500	2,048	1,472		1.26	2.53	5.06	1,894	3,793	7,592
2,000	2,048	1,080		1.29	2.59	5.17	2,581	5,170	10,348
2,500	1,536	1,024		1.45	2.91	5.82	3,630	7,271	14,552
3,000	1,024	1,024		1.82	3.64	7.28	5,445	10,906	21,829
3,200	1,024	1,024	2.76 μs	1.70	3.41	6.82	5,445	10,906	21,829
4,000	1,024	768		1.82	3.64	7.28	7,260	14,542	29,105
5,000	1,024	640	1/367,000 sec	1.74	3.49	6.99	8,712	17,450	34,926
6,250	1,024	512		1.74	3.49	6.99	10,890	21,813	43,658
7,200	768	512		2.02	4.04	8.08	14,520	29,084	58,211
8,000	512	512		2.72	5.45	10.91	21,781	43,626	87,317
10,000	512	416		2.68	5.37	10.75	26,807	53,694	107,467
16,000	512	256		2.72	5.45	10.91	43,562	87,253	174,634
18,000	256	256		4.84	9.69	19.40	87,125	174,506	349,269
20,000	256	224		4.98	9.97	19.96	99,571	199,436	399,164
30,000	256	128		5.81	11.63	23.28	174,250	349,013	698,538
43,200	256	96		5.38	10.77	21.56	232,334	465,351	931,384
54,000	256	64		6.45	12.93	25.87	348,501	698,026	1,397,077
86,400	256	32		8.07	16.16	32.34	697,002	1,396,053	2,794,154

Sensor — 10 μm pixels, temperature stabilized, 12-bit ADC (Bayer system color, single sensor) with microlenses

Shutter — Global electronic shutter from 16.7ms to 2.76 μs independent of frame rate

Lens Mount — Interchangeable F-mount and C-mount using supplied adapters, optional PL and B4 lens mounts

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

Memory — 8GB (standard: 1,361 frames @ Maximum resolution) 16GB (option: 2,726 frames @ Maximum resolution) 32GB (option: 5,457 frames @ Maximum resolution)

Video Outputs — Live and playback video thorough Dual HD-SDI or single RS-170 (NTSC/PAL) outputs. Ability to zoom, pan and tilt within image via keypad.

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

User Preset Switches — Four user selectable camera function controls mounted on the camera's rear panel

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

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

Phase Lock — Enables cameras to be synchronized precisely together to a master camera or external source

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

Trigger Modes — Start, End, Center, Manual, Random, Random Reset, Random Center, Random Manual and Duals Speed Recording

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 and Resolution

Partitioning — Up to 64 memory segments for multiple recording in memory

Data Acquisition — Supports Photron MCDL and DAQ

Cooling — Actively cooled

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

Mounting — 1 x 1/4 - 20 UNC, 1 x 3/8 - 16 UNC, 6x M6

Dimensions — 165mm (6.5")H × 153mm (6.02")W × 250mm (9.84")D

Weight — 6.9 kg (15.21 lbs)

Power Requirements — 100V-240V AC ~ 1.5A, 50-60Hz DC operation 18-36 V DC, 100VA

Specifications subject to change without notice

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SLOW MOTION IMAGING SOLUTIONS