



Photron's high-speed cameras captures the impact of a driver connecting with a golf ball. This video sequence provides engineers with valuable insight into ways of improving both club and ball designs. These images are selected from an original recording made at 10,000 fps.

ultima APX

FASTCAM

The defacto standard for high-speed imaging, sensitivity and versatility.

The mega-pixel Photron **ultima APX** offers frame rates up to 2,000 fps at full resolution and up to 120,000 fps at reduced resolutions. With interchangeable CMOS camera heads (10-bit monochrome, 30-bit color, or image intensified), and the ability to both setup and operate the camera without a computer, the **ultima APX** provides many powerful features not found in any other high-speed digital imaging system.

Flexible 16 feet (5 meters) cables between camera head and the processor allows the **ultima APX** system to be operated in inaccessible and space confined locations. Both the camera head and processor have been designed for operation in high shock and vibration environments.

As well as the High-G **ultima APX**, the APX family of cameras includes the single unit **ultima APX-RS**, the image intensified **ultima APX-i2**, and the PC-based **FASTCAM-X 1024 PCI**; all providing the same great light sensitivity, performance and reliability that Photron has become known for.



BENEFITS

60 to 2,000 fps at full mega pixel image resolution and up to 120,000 fps at reduced resolutions to capture the fastest events

Global electronic shuttering to 4 μ s

Interchangeable camera heads for color, black and white and intensified imaging

Recordings can be directly saved in various industry standard formats including AVI, TIFF, PNG (10-bit), JPEG, BMP, or RAW Bayer (10-bit)

Superior light sensitivity to other high-speed imaging systems through the use of an advanced design CMOS sensor optimized for low noise and high dynamic range

Optional hardware enables synchronized recording and display of external digital or analogue data from load cells, transducers, etc.

IRIG or GPS timing data recorded in real time on every frame – not appended later

Dual Speed Recording™ allows different framing rates to be used within a single recording

SLOW MOTION IMAGING SOLUTIONS

Photron®

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SPECIFICATIONS

Frame Rate (fps)	Max. Resolution		Record Time (seconds)		Record Time (frames)	
	Horizontal	Vertical	2.6GB	8GB	2.6GB	8GB
60	1024	1024	34.1	102.4	2,048	6,144
125	1024	1024	16.4	49.2	2,048	6,144
250	1024	1024	8.2	24.6	2,048	6,144
500	1024	1024	4.1	12.3	2,048	6,144
1,000	1024	1024	2	6.1	2,048	6,144
2,000	1024	1024	1	3.1	2,048	6,144
2,000	1024	768	1.3	4.1	2,730	8,190
3,000	512	1024	1.4	4.1	4,096	12,288
4,000	1024	512	1	3.1	4,096	12,288
6,000	512	512	1.4	4.1	8,192	24,576
8,000	1024	256	1	3.1	8,192	24,576
10,000	512	256	1.6	4.9	16,384	49,152
12,500	512	256	1.3	3.9	16,384	49,152
15,000	1024	128	1.1	3.3	16,384	49,152
15,000	256	256	2.2	6.6	32,768	98,304
20,000	128	256	3.3	9.8	65,536	196,608
24,000	512	128	1.4	4.1	32,768	98,304
30,000	256	128	2.2	6.6	65,536	196,608
40,000	512	64	1.6	4.9	65,536	196,608
50,000	256	64	2.6	7.9	131,072	393,216
87,600	256	32	3	9	262,144	786,342
100,000	128	32	5.2	15.7	524,288	1,572,864
120,000	128	16	8.7	26.2	1,048,576	3,145,728

- Sensor** 10-bit CMOS (Bayer system color, single sensor) with 17µm pixel, overexposure protection
- Shutter** Global electronic shutter from 16.7ms to 4µs independent of frame rate
- Saved Image Formats** JPEG, AVI, TIFF, BMP, RAW (compressed or uncompressed) PNG (10-bit), and FTIF (10-bit). Images can be saved with or without image or comment data
- Extended Dynamic Range** Selectable from 4 presets to prevent over exposure
- Phase Lock** Enables cameras to be synchronized precisely together to a master camera or external source
- Triggering** Selectable positive or negative TTL 5Vp-p, switch closure
- Lens Mount** Interchangeable F-mount and C-mount standard. Optional High-G block mount
- Camera Cable** 16.4' (5m)
- Data Display** Frame Rate, Shutter Speed, Trigger Mode, Date or Time (can be switched), Status (Playback/Record), Real Time, Frame Count, Resolution System or IRIG time, and user-edited comments can be displayed beside or in the saved image area for all formats
- Video Output** NTSC or PAL. Live video during recording. Ability to zoom and pan within image via keypad
- Dual Speed Recording™** Enables the recording speed to be changed, up or down, by a factor of 2, 4 or 8 during a recording
- Timing** Internal clock or external source such as IRIG or GPS. Indicators show current status of timing source
- Event Markers** User-entered event markers mark specific events within the image sequence in real time. Immediately accessible through software
- Recording Modes** Start, End, Center, Manual, Random, Random Reset, Random Center, Random Manual, and Dual Speed Recording™
- Partitioning** Up to 64 memory segments for multiple recordings in memory
- Camera Control** Through supplied keypad and RS-422A. And either via the Photron Gigabit Optical Network, Ethernet or FireWire
- Shock** 100G @ 10ms any axis
- Dimensions and Weight** **Camera Head:** (no lens mount): 4.72" (120mm) H x 4.33" (110mm) W x 4.41" (112mm) D **Weight:** 2.2 lb (1 kg)
Processor: 8.39" (213mm) H x 5.51" (140mm) W x 12.08" (306.8mm) D **Weight:** 12.13 lb (5.5 kg) DC, 18.74 lb (8.5 kg) AC

Specifications subject to change without notice

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