Provisional Information

ultima APX I^2

FASTCAM

Photron's innovative ultima APX high-speed imaging system now integrated with a high performance gated image intensifier

The Photron FASTCAM ultima APX high-speed imaging system has set new standards for high speed imaging performance.

Now integrated with a 25mm Micro Channel Plate image intensifier fibre-optically coupled to the sensor the system provides the ultimate light sensitivity, exposure durations to 20 nanoseconds and extended spectral sensitivity.

Control and operation of all system functions including intensifier gain and exposure duration is conveniently provided through a handheld control keypad and Photron's standard *FASTCAM Viewer* software package.

The ultima APX I^2 system comprises camera head with integral image intensifier and power supply module, 5 meter camera cable, processor unit with recording memory, handheld control keypad and system control software.

Users of the FASTCAM ultima APX system can add an image intensified camera head to existing systems.

FEATURES

- Full 1024x1024 pixel image resolution up to 2,000fps, and reduced resolution operation to 120,000fps.
- Light weight and compact camera head with integral image intensifier module.
- Exposure durations controlled through image intensifier gateing to 20 nanoseconds.
- Ultra high light sensitivity through 10,000 times image intensifier gain.
- UV Spectral Sensitivity to 200nm.
- Up to 16 multiple exposures per frame.

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Specifications **ultima APX I²**

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Frame Rates (in frames per second)

60+	500	1,000	2,000	4,000	6,000	8,000	12,500	15,000	24,000	30,000	40,000	50,000	87,600	100,000	120,000

Image resolution

Frame Rate (fps)	Maximum Resolution	
	H	V
60 to 2000	1,024	1,024
4,000	1,024	512
6,000	512	512
8,000	1,024	256
10,000	512	256
15,000	1,024	128
20,000	128	256

Frame Rate (fps)	Maximum Resolution	
	H	V
24,000	512	128
30,000	256	128
40,000	512	64
50,000	256	64
87,600	256	32
100,000	128	32
120,000	128	16

Recording Time (in seconds and frames)

Frame Rate (fps)	Standard memory		Expanded memory	
2,000	1 sec	2,048 frames	3 sec	6,144 frames
4,000	1 sec	4,096	3 sec	12,288
10,000	1.6 sec	16,384	3.9 sec	49,152
24,000	1.36 sec	32,768	4 sec	98,304
50,000	2.6 sec	131,072	7.8 sec	393,216
100,000	5.2 sec	524,288	15.7 sec	1,572,864
120,000	8.7 sec	1,048,576	26.2 sec	3,145,728

Image Intensifier Specification:

Input area: 25mm diameter
Input Optic: Fused Silica
Photocathode Type S20
Output Phosphor: High brightness, 4 microsecond decay
Coupling: Fibre optic coupling direct to sensor (1:1)
Spectral response (minimum): 214nm 10mA/watt
450nm 40mA/watt
800nm 2mA/watt
Radiant Gain (at 500nm) 10,000 watts/watts
Limiting resolution (typical) 28 lp/mm
Gating Operation to 20ns

Imager Specification:

Sensor: Advanced CMOS 17um pixel
Lens Mount: Nikon F mount
Triggering: Selectable positive/ negative pulse or switch closure
Camera Cable: 5 meters
Data Display: Frame rate, shutter speed, Trigger mode, date or time, Status, Real time, frame count, resolution
Video Output: NTSC/PAL live during record with zoom and scroll
Timing: Internal clock or external source eg: IRIG
Recording Modes: Start, End, Centre, Manual, Random
Event Markers: Ten user entered markers available
Partitioning: Up to 64 memory segments for multiple recordings in memory
System Control: Key Pad or RS-422A and via either FireWire, Ethernet or Photron GigaBit Optical Network

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