

PHOTRON

Ultra-High-Speed Multi-Spectral Video Camera System

FASTCAM Spectra

Records Images in Three Spectral Bands <Visible/Ultraviolet>



The FASTCAM-Spectra is a versatile, ultra-high-speed video camera system consisting of three imaging units each comprised of a 4,500 frames/sec high-speed sensor coupled with an image intensifier, an interference filter and a spectrally selective mirror.

The imaging unit, consisting of an image intensifier and image sensor, is controlled by two independently operating delay circuits. This offers both perfect synchronous framing and ultra-high-speed delayed framing by means of gating the image intensifiers.

Each sensor unit has a filter holder on the front of it that accommodates any interference filter. This makes it possible to turn the system into a high-speed multi-spectral video frame recorder with filters of any wavelengths particularly selected to your analytical purposes.

FEATURES

■ Ultra-High-Speed Triple-Frame Recording

Offers three-consecutive-frame recording at an interval of as short as 20 nano-sec (50 million frames/sec) at shuttering duration up to 20 nano sec. The cycling rate of recordings is 1/4,500 sec (222 °sec).

■ High-Sensitivity Standard-Speed Video Recording

Offers high-sensitivity color video recording at 30 frames/sec using the image sensors directly coupled to the high-grade image intensifier by optical fiber image guide.

■ Three-Wavelength Video Recording

By using selected interference filters and spectrally selective mirror optics, the system offers simultaneous image recording at three different spectral wave lengths. This makes it possible for the system to simultaneously analyze high-speed motion of an object and its characteristic temperature distribution, or to record illuminating laser and fluorescent lights separately as well as the fast-moving object.

■ High-Dynamic-Range Video Recording

Synchronized recording with three imaging units, each with a different gamma characteristic to compensate for the low dynamic range of the high-sensitive image-intensifier, makes available high-speed recorded images that offer a wider, practical dynamic range by consequential image processing.

Specifications

Lens mount	FASTCAM-Spectra mount (FB=87 mm)
Image splitter	Spectral ranges 280-460, 510-560, 600-680 nm standard, or user selectable
Filter holder	One filter holder for each imaging sensor
Pixel registration	Within one pixel
Shuttering	By gating image intensifier
Image Intensifier	
Sensitive spectral range	180 to 840 nm
Phosphor	P24 standard (other phosphors available)
Window	Glass
Gating width	20, 100 n. sec., 1, 5, 10, 100 °sec., DC
Gating frequency	Synchronized with framing rates (up to 40,500 fps)
Gating delay	(0,0,0 sec); (0, 20, 40 n. sec.); (0, 1, 2 °sec.); (0, 10, 20 °sec.)
Gain adjustment	Front panel control and external voltage control
Image sensor	MOS type solid state sensor, Photron HE98258
Framing rates (frames/sec.)	Full frame: 30; 60;125; 250; 500; 750; 1,125; 2,250; 4,500
Imaging pixels	Full frame: 256 x 256 pixels Segment frame: 256 x 128; 128 x 128; 256 x 64; 128 x 64; 64 x 64 pixels
Recording method	IC memory (DRAM)
Recording capacity	1.6 G byte (Max. 4.8 Gbyte)
Recording frames	8,192 frames (Max 24,576 full frames, 256 x 256 pix.) 131,072 frames (Max 393,216 frames, partial frames 64 x 64 pix)
Recording time	1.82 sec (Max 5.46 sec. Full frames 256 x 256, at 4,500 fps) 3.24 sec(Max 9.71 sec. partial frames 64 x 64, at 40,500 fps)
Recording density	8 bits (256 gray scale) each channel
Playback rate	2, 5, 10, 15, 30 frames/sec.; FF at 10 times the speed; jog; freeze 2, 4, 8, 12, 25 frames/sec (PAL)
Playback modes	Play, FF, Reverse, F Reverse, Jog, Reverse Jog, Pause, Block, Trigger Point Detection
Triggering modes	Start, Center, End
Random recording	1, 2 or 4 frames at each trigger
Video output	NTSC or PAL, 3 channels
Gate output	5 °sec. wide, 3 channels
Digital output	SCSI
Data display	Lapsed time, Frame number, Recording rate
External input trigger	TTL open collector, contact
External output signals	V- sync, Recording mode switching signal
Endless recording	Standard
Imager cable	5 Meters
Hand-held keypad	For control of system operation
Power requirement	95 to 220 VAC, 50/60 Hz
Dimensions & weight	Processor: 17(W) x 10.4(H) x 19.6(D) inches, 67lbs. 432(W) x 264(H) x 498(D) mm, 30.3kg Imager: 8.7(W) x 15.7(H) x 11(D) inches, 34lbs. 220(W) x 399(H) x 279(D) mm, 15.4kg

All the product names are trademarks or registered trademarks of Photron Limited.
Contents and specifications in this brochure are subject to change without prior notice.



PHOTRON can be reached at:
San Diego, California in the US Tel: (800) 585-2129
Marlow, Bucks in UK Tel: +44 (0) 1628 894353
E-mail: image@photron.com
www.photron.com