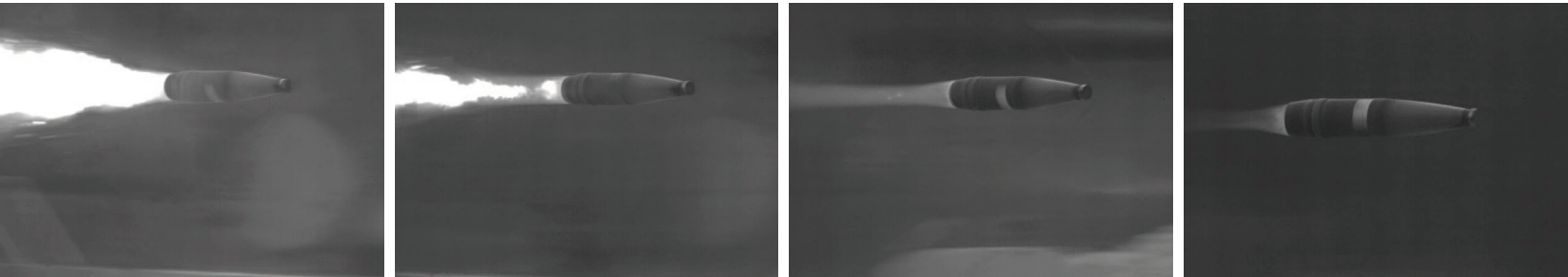
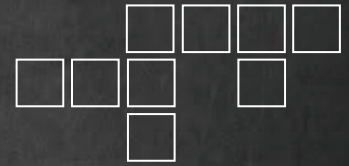


# FASTCAM Multi

## MULTI HEAD HIGH-SPEED CAMERA SYSTEM



### Compact Camera Heads provide Big Performance

The FASTCAM Multi is a unique, high-speed camera system featuring one or two compact and lightweight camera heads tethered to a remote processor. The small camera heads allow image capture at up to 6,000 frames per second (fps) at megapixel resolution within confined areas that are not large enough to support the size of a "typical stand alone" high-speed camera. The separation of the camera head from the processor ensures that image data is safely retained in the processor, even if the camera head is damaged or destroyed during an explosive event. No other high speed camera has the combination of high resolution, frame rate performance and small camera size that is available with the FASTCAM Multi.

Despite the small size of its camera head(s), the FASTCAM Multi provides a very high level of imaging performance. The system offers up to 4,800 fps at full 1,280 x 1,024 pixel resolution and 6,000 fps at 720 High Definition (HD) resolution, and with reduced resolution to 750,000 fps. A global shutter provides blur free 12-bit images with exposure times as short as 1 microsecond. The FASTCAM Multi's CMOS sensor features 10 micron square pixels that deliver light sensitivity of ISO 10,000 monochrome and ISO 5,000 color according to the ISO 12232 Ssat standard.

The FASTCAM Multi is compatible with a large quantity of off-the-shelf commercial lenses, including C mount, Nikon F (G-type) and Micro Four Thirds (MFT) lens mounts. Due to the small pixel pitch of the FASTCAM Multi's sensor, the camera is capable of utilizing 1" C mount lenses without the appearance of vignetting. Its distinctive feature set makes the FASTCAM Multi well-suited for many different applications including microscopy, detonation and explosives testing, off board automotive safety testing and more.

#### Target applications include:

- Biomechanics
- Fluid dynamics
- Defense and aerospace research
- Life sciences
- Material science
- Digital Image Correlation

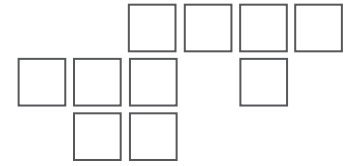
### Benefits

- Frame Rate Performance examples:
  - 4,800 fps at 1,280 x 1,024 pixel resolution
  - 6,000 fps at 1,280 x 824 pixel resolution
  - 10,000 fps at 896 x 488 pixel resolution
  - 16,000 fps at 1,280 x 296 pixel resolution
  - 150,000 fps at 1,280 x 24 pixel resolution
  - 750,000 fps at 640 x 8 pixel resolution
- One or two compact and lightweight camera heads
  - 69mm (2.72")W x 70mm (2.76")H x 151.4mm (5.96")D
  - 0.98kg (2.16 lbs.)
- Durable 5 meter (standard) and 10 meter (optional) cables
- Retention of video data if camera head is damaged or destroyed
- Electronics protected from dirt and dust
- Sensitivity: ISO 12232 Ssat standard
  - ISO 10,000 monochrome
  - ISO 5,000 color
- Compatibility with 1 inch C mount, Nikon G type and Micro Four Thirds (MFT) lenses
- 8GB, 16GB and 32GB memory options (per camera head) and high performance Gigabit Ethernet interface to PC



# FASTCAM Multi

## MULTI HEAD HIGH-SPEED CAMERA SYSTEM



### Specifications: Partial Frame Rate / Recording Duration Table

FRAME RATE (fps)	MAXIMUM RESOLUTION Horizontal      Vertical		RECORD DURATION (12-BIT)					
			TIME (Sec.)			FRAMES		
			8GB	16GB	32GB	8GB	16GB	32GB
4,800	1,280	1,024	0.91	1.82	3.64	4,363	8,733	17,471
5,000	1,280	1,000	0.89	1.79	3.58	4,467	8,942	17,890
6,000	1,280	824	0.90	1.81	3.62	5,422	10,853	21,712
8,000	1,280	616	0.91	1.81	3.63	7,254	14,518	29,043
10,000	1,280	488	0.92	1.83	3.67	9,157	18,326	36,662
12,500	1,280	384	0.93	1.86	3.73	11,638	23,290	46,591
16,000	1,280	296	0.94	1.89	3.78	15,098	30,214	60,443
150,000	1,280	24	1.24	2.48	4.97	186,240	372,655	745,482
750,000	640	8	1.49	2.98	5.96	1,117,455	2,235,937	4,472,899

### FASTCAM Multi Camera Head HS-01

<b>Sensor</b>	1,280x1,024 pixels, 10um pixel size, 12-bit ADC (Bayer system color, 36 bit single sensor)	<b>Housing Design</b>	RV (sealed body with fan) *fan stop feature is available
<b>Shutter</b>	Global electronic shutter from 16.6ms to 1us dependent on frame rate	<b>Mounting</b>	1xM3, 1x1/4, 1x3/8
<b>Lens Mount</b>	F (G type lens mount compatible), C, MFT (optional)	<b>Dimensions</b>	69mm (2.72") (W) × 70mm (2.76") (H) × 151.4mm (5.96) (D)
<b>Sensitivity</b>	ISO 10,000 (mono), 5,000 (color) ISO 12232 Ssat Standard	<b>Weight</b>	0.98kg (2.16lbs) (excluding protrusions)
		<b>Operating Temperature</b>	0 - 45 degrees (32 - 104 degree F)

### FASTCAM Multi Camera Cable

<b>Type of cable</b>	Multi Optical Camera Cable	<b>Diameter</b>	12.5mm (excluding connector)
<b>Length</b>	5m/10m *Special long distance will be available	<b>Minimum bending radius</b>	125mm

### FASTCAM Multi Main Unit

<b>Memory</b>	8GB (4,363 frames @ maximum resolution) or 16GB (8,733 frames @ maximum resolution) memory options 32GB (17,471 frames @ maximum resolution) memory options	<b>Video Out</b>	Mini Display Port *format is based on HDMI, HD-SDI (*Coming soon)
<b>Camera Control</b>	Software control through High speed Gigabit Ethernet or Remote Keypad (*Coming soon)	<b>Saved Image Formats</b>	JPEG, AVI, TIFF, BMP, RAW, PNG, MOV and FTIF. Images can be saved with or without image or comment data
<b>No. of Camera Port</b>	1ch or 2ch selectable	<b>Data Display</b>	Frame Rate, Shutter Speed, Trigger Mode, Date or Time, Status (Playback/Record), Real Time, Frame Count and Resolution
<b>Trigger Modes</b>	Start, Center, End, Manual, Random, Random Reset, Random Center, Random Manual	<b>Housing design</b>	RV (sealed body with fan)
<b>I/O</b>	Input: Trigger (TTL/Switch), Sync, Ready, Event, IRIG Output: Trigger, Sync, Ready, Rec, Expose, IRIG_1PPS	<b>Operating Temperature</b>	0 - 45 degrees (32 - 104 degree F)
<b>Phase Lock</b>	Enables cameras to synchronized precisely together to a master camera or external source, such as IRIG time codes	<b>Dimensions</b>	260mm (10.24") (W) × 140mm (5.51") (H) × 223mm (8.78") (D)
<b>Timing</b>	Internal clock or external source <0V~+12V (H level+2.5~+12V) *Variable frequency synchronization is available>	<b>Weight</b>	7.8kg (17.2lbs) (excluding protrusions)
		<b>Power Requirements</b>	100V-240V AC 200W , 50-60Hz DC operation 20-34V, 180VA

Specifications subject to change without notice

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