

DRS's ULTRA 4 HIGH-SPEED IMAGING SYSTEM

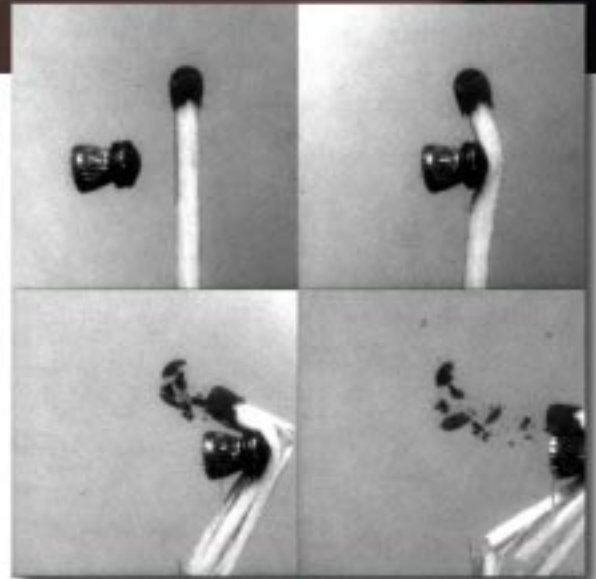


DRS's Ultra 4 is a high-speed imaging system that is based on a novel approach to Intensified CCD technology which allows the user to capture images from a wide range of fast phenomena at framing rates up to 100 million pictures per second. Programmable exposure and interframe times provide a comprehensive range of capture parameters recording minute detail from widely varying experimental procedures. Additionally, through-the-lens periscope focusing simplifies set-up time and accurate alignment.

The four frames from the Ultra 4 are very high resolution images allowing accurate analysis of ultra high-speed events. They detail the rapid changes taking place in sub-microsecond timescales.

The Ultra 4 beam splitter uniquely incorporates a filter holder in front of the intensifier allowing each frame to record a different part of the optical spectrum. Alternatively, three color separation filters may be fitted and software allows the channels to be triggered simultaneously. Using third party software, the images are combined to produce one full-color image and a fourth channel produces a black and white image separated in time.

These features, together with others offered in the Ultra Platform control software, make the Ultra 4 a unique high-speed digital camera system for dual use applications in government range testing or commercial markets.



Air Pellet into Match
Pellet .177 Cal., Velocity 400 ft/sec.,
Images taken at 50,000 fps, 100 ns exposures.

DRS DATA & IMAGING SYSTEMS, INC.



Features

- 960 x 960-pixel resolution per frame
- 12-bit CCD sensor
- 1,000 - 100,000,000 frames per second
- 10 ns - 1 ms exposure time per frame
- Multiple exposures per frame
- 200Mb/s fiber optic data link to PC
- Through-the-lens periscope focusing
- Full control and analysis software
- Filter holder for time resolved multi-spectral analysis

Optical

Number of frames	4 frames
Optical input	Single input beam splitter
Lenses	SLR Nikon® mount
System aperture	f4

Intensifier/CCD

Intensifier	Gated high resolution 40 mm MCP f/o coupled
Photocathode	S20/S25
Gain	Up to 8,000X in 100 steps
Resolution	960 x 960 pixels per frame
Pixel size	14 µm square
Dynamic range	12 bits

Timing Parameters

System clock	100 Mhz
Inherent delay	100 ns
Exposure times	10 ns to 1 ms in 10 ns steps
Interframe times	10 ns to 1 ms in 10 ns steps
Delay to first exposure	100 ns to 10 ms in 10 ns steps
Preflash timings	1 µs - 1 ms
Framing rates	Up to 100,000,000 fps
Number of exposures	Up to 4 exposures per frame

Input/Output Signals

Triggers	TTL (+/-); make/break into 470 Ohms
Monitor pulses	Width and position user programmable
Preflash output	TTL into 50 Ohms pulse width 1 µs
Control	Fiber-optic communications up to 1 km

Dimensions

Length	660 mm
Width	165 mm
Height	295 mm
Weight	12 kg (26 lbs.)

Specifications subject to change without notice.

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