



Making the invisible visible

Preliminary **HSi** Ultra High Speed Framing Camera

The Invisible™ Vision *Ultra* HSi series of ultra high speed framing cameras are designed to capture up to 20 distinct, mega-pixel images of the very fastest events with ease from deep UV through visible to the NIR spectrum (200 to > 800nm) as standard. Exposures down to 5ns, frame rates to 200M fps and versatile triggering options including frame-by-frame and multi-sequence allow the researcher unparalleled flexibility in allowing the camera to respond to the event of interest.

At the heart of the *Ultra* HSi is a unique, efficient, high aperture, high resolution beam-splitter designed for UV to NIR response with spectral channel to channel matching. This is complimented with an unbridled *Ultra* 'segmented' UV intensifier and 16M pixel GigE linked CCD.



Together they all combine to form a very elegant, reliable yet cost effective ultra high speed imaging system.



Typical applications are in combustion, electric discharge, biomedical, detonics, impact, somi-luminescence, fluoroscopy, shock physics and material studies.

The *Ultra* HSi is easily programmed by its custom PC software running on a notebook PC via the GigE connection. For ease of use, an optical viewfinder is also available should the user wish not to use the internal electronic focus modes. Simplicity being a virtue, the camera provides a simple single programmable input trigger (which can be multi-pulsed for frame by frame and multi-sequence modes) and four output triggers for external synchronization of further cameras and or flash systems.

Rugged and compact, the camera is designed for ease-of-use with a minimum of service requirements.

Intensifier

Input Window
Photocathode

Output Window
Phosphor
Gain
Output Diameter
Gating
Resolution

Full Custom, Patented UV 'Segmented' Gen 2.

Quartz.
S20 / S25, 200nm to > 850nm (UV to NIR).
Typically 600µA/lumen (white light).
Glass.
P46, decay – typically 1µs.
Typically set to maximum of 2000.
40mm.
5ns Minimum (standard unit).
35 lp/mm.

Optics

Input
Beam-splitter
Output Image Format
View-finder

Full Custom, patented UV beam-splitter.

F – mount.
Bespoke, f/4 input, 10 way, 200nm to 1000nm.
12 images to match intensifier segmentation.
Optical viewfinder / shutter as standard.

CCD

Pixels
Dynamic Range

4872 (h) x 3248 (v) with 7.4µm pixels
12 bit

System

Frames
Resolution
Framing Rate
Exposures
Delays

Gain Control
Triggering

Outputs

Protection
Software

Viewfinder
Interface

12 + 12 (12 images at 200M fps + further 10)
Each image 1200 x 1000 pixels maximum
200M fps
5ns to > 1ms in 5ns steps
From input trigger 50ns to > 10ms in 5ns steps.
10us minimum between frame 10 and 11.
User programmable 0 to 100% (12 bits).
TTL Positive, TTL Negative.
Make / Break (self powered).
Frame by frame (camera requires input trigger per frame)
Multi-sequence (camera will run different 'programme' per trigger)
User Programmable TTL Gate monitor. 5ns timing steps
Four User Programmable TTL 'strokes'. 5ns timing steps
Built in mechanical capping shutter.
Bespoke application software including full camera control and
image storage/analysis/export options.
Optical viewfinder for ease of use.
Giganet Ethernet (GigE) direct to PC.

Environmental

Dimensions (approximate)
Weight
Power
Temperature
Construction
Mounting
Documentation and Software
Packaging

TBA
< 15Kg.
50W max (90-264VAC).
0°C to 40°C, non-condensing humidity.
Aluminium housing.
1/4-20 UNC thread plus 4 x M8 on base.
Supplied on CD.
Heavy duty IP65 flight box.

CE and RoHS (Pb free)

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