



*Making the invisible visible*

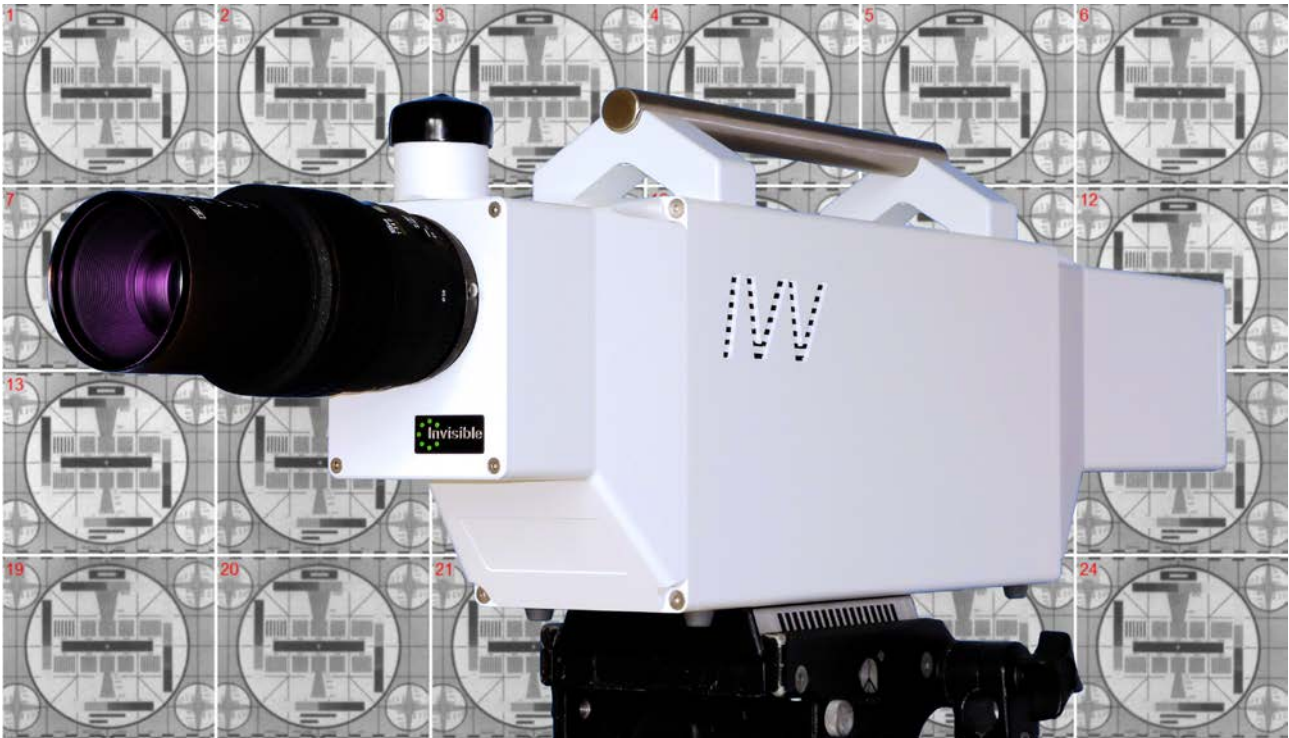
**UHSi**

# Ultra High Speed Framing Camera

The Invisible® Vision Ultra UHSi series of compact ultra high speed framing cameras are designed to capture up to 24 mega-pixel performance frames of the very fastest events. With fully independently programmable exposures and delays down to 5ns, frame rates to 200M fps, intensified and with versatile triggering options including 'synchro' mode (frame-by-frame) allow the researcher unparalleled flexibility to capture the event.

At the heart of the Ultra UHSi is a unique high resolution beam-splitter with optional UV capability. This is complimented with an unbridled *Ultra* 'segmented' intensifier and 16M pixel GigE linked CCD.

Together with flexible proven control and timing electronics plus powerful system software they combine to form an elegant, reliable, yet cost effective 21<sup>st</sup> century ultra high speed imaging system.



## The New Ultra UHSi 12/24

- 200M FPS, Up to 24 Frames
- Megapixel Performance



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

The Ultra UHSi is easily controlled with the included IVV Imprint® PC software running on a laptop via a GigE connection. For ease of use, an optical viewfinder is also available to aid set-up and alignment. Simplicity being a virtue, the camera provides a simple single programmable input trigger (which can be multi-pulsed for 'synchro' frame by frame modes) as well as a manual software trigger mode. Four programmable output strobes plus a shutter monitor are provided for external synchronization of further cameras, experiment triggering and / or flash systems. An internal programmable velocity trap trigger mode is also included.

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

## Intensifier

Input Window  
Photocathode

Custom Design, Patented.  
Glass (UV option).  
S25, 400nm to > 850nm (S20 UV option).  
S25 typically > 300µA/lumen (white light).  
Typically set to maximum of 5000.

Gain

## Optics

Input  
Beam-splitter  
View-finder

Custom Design, Patented.  
Standard Nikon F-mount.  
Bespoke, 12+ way, visible with UV option. f/2.  
Automatic optical viewfinder / capping shutter.

## CCD

Pixels  
Dynamic Range

4872 (h) x 3248 (v) with 7.4µm pixels  
65dB – Digitized to 12 bit

## System

Frames  
Resolution  
Timing / Trigger Jitter  
Framing Rate  
Exposures  
Delays

12 + 12 (12 images @ 200M fps + further 12 @ 200M fps).  
24 Frames @ 1000 x 860 pixels per image.  
System dynamically resolves > 350 TV lines per picture height.  
200MHz (5ns period) system clock. Trigger jitter to clock ± 2.5ns.  
200M fps  
5ns to > 1ms in 5ns steps. Multiple exposures allowed.  
From input trigger : 50ns to > 10ms in 5ns steps.  
Interframe times : 0 to > 10ms in 5ns steps.  
10µs nominal between frames 12 and 13.  
User programmable 0 to 100% (12 bits).  
TTL Positive, TTL Negative, Make & Break (self powered).  
'Synchro' mode – frame-by-frame (separate trigger per frame).  
Velocity Trap - Measures velocity on-the-fly & automatically triggers.  
User Programmable TTL Gate monitor. 5ns timing steps  
Four User Programmable TTL 'strokes'. 5ns timing steps  
Gigabit Ethernet (1000Mb/sec - GigE) direct to PC.

Gain Control  
Triggering

Outputs

Interface

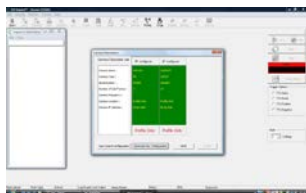
## Environmental

Dimensions (excluding objective lens)  
Weight (excluding objective lens)  
Power  
Temperature  
Construction  
Mounting  
Documentation and Software  
Packaging  
CE and RoHS (Pb free)

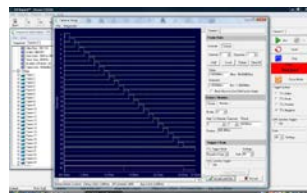
106mm (wide) x 215mm (height) x 696mm (long)  
9.9Kg (21.8 lb - avoirdupois pounds)  
35W max (90-264VAC).  
0°C to 40°C, non-condensing humidity.  
Solid aluminium housing with large carrying handle.  
2 x 3/8-16 UNC thread on base.  
Supplied on CD.  
Heavy duty IP65 flight box.

## Software

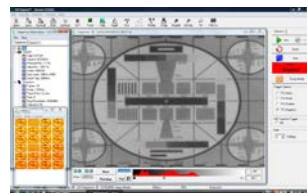
IVV Imprint<sup>®</sup> PC software as standard. Software seamlessly allows for full multi-camera control, capture, image analysis and file export for all current IVV camera types.



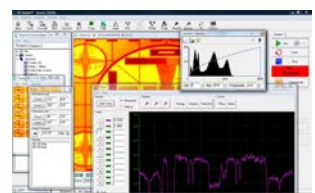
CONFIGURE



TIMING



CAPTURE



ANALYSE

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