



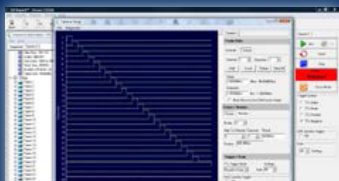
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INCORPORATED

FEATURES

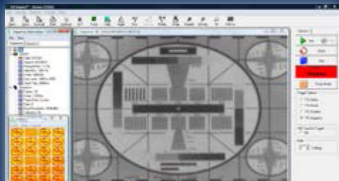
- 4872 (H) x 3248 (V) active pixels
- Fast Gating to 10ns
- Integral 40mm Intensifier - High Gain/Sensitivity
- GigE interfacing
- Two sequential frames plus multiple exposure options.
- Optical viewfinder and capping shutter
- Programmable electrical triggering options
- Built-in velocity trap
- IVV Imprint PC software for control/analysis
- Compact, rugged design
- Standard Nikon F-mount
- Photocathode Options: S20 (UV biased, UV to Visible) or S25 (Visible biased, UV to NIR)



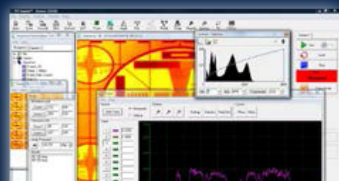
CONFIGURE



TIMING



CAPTURE



ANALYSE

PiV Framing Camera

Ultra High Speed Framing Camera



The PiV Framing Camera

- 16 Mega Pixel Resolution
- Intensified Imaging
- Multiple Exposures
- Ultra Fast Shutter to 10ns



The Invisible® Vision PiV series of multi-frame cameras are designed to achieve ultra fast shuttering combined with zero frame to frame distortion – so essential for quantitative particle image velocimetry applications in the analysis and scientific modelling of high speed events.

Camera options enable the user the maximum choice in optimizing a custom camera system for his/her application. Current system options include differing sensor arrangements from high speed video CMOS sensors through to ultra high resolution CCDs. Systems are also available with and without integral image intensification, the intensifier being chosen with a performance to match the sensor.

Spectral response can range from the UV to near IR (< 200nm to 1000nm).

Typical applications are in particle image velocimetry (PIV) for fluid dynamics but the cameras also find excellent application in combustion, electric discharge, nano-technology, biomedical and ballistics as well as many other high speed and ultra high speed macroscopic imaging requirements.

PiV Model 40-16Mi-V

The PiV 40-16MIV camera system is the ultimate state-of-the-art camera system for ultra high speed shuttering with the maximum possible resolution. With two independent user

programmed intensified frames, each with a minimum exposure of 20ns (10ns optional) and a 16 Mega-pixel CCD, the system can easily capture in great detail ultra high speed events over an extensive temporal (and illumination) range. In addition, each frame may be multiple exposed for even greater flexibility. An optical viewfinder is included as an option (-V) for aid in focus and system setup. The system is intrinsically both UV and visible sensitive but can be ordered either with an an S20 (UV bias) or S25 (visible bias) photo-cathode.

Synchronization is easily handled with positive, negative, make and break (self powered) input trigger signals and four user programmable output strobes (plus gate monitor) for the additional synchronization of external cameras, systems or strobes or even to trigger the experiment itself.

All PiV cameras are designed to be easy to use and come complete with IVV Imprint™ camera control, capture and analysis PC software – capable of operating multiple cameras. Extremely compact and rugged, with easy GigE interfacing and simple power supply and operational requirements the units are designed for a long installed life with the minimum of service requirements.

PiV Framing Camera Model 40-16Mi-V

Intensifier	40mm MCP High Resolution
Input Window	Quartz
Photocathode	S20 or S25
Spectral range.....	200 to 800nm (standard – others upon request).
Output Window.....	Glass.
Phosphor	P46 standard – others upon request.
Gain	Up to 2,000 (P46)
Format	40mm
Gating	20ns Minimum (standard unit). 10ns upon request
Resolution.....	35 lp/mm.

CCD

Pixels	4872 (h) x 3248 (v) with 7.4µm pixels.
Dynamic Range.....	65dB - Digitized to 12 bit.

Optics

Input	Nikon F – mount.
View-finder	Automatic optical viewfinder / capping shutter.

System

.....	Double Imaging, Multiple Exposure.
Resolution.....	16M pixels 4872 x 3248. System dynamically resolves > 1300 TV lines per picture height.
Exposures	20ns to > 1ms in 5ns steps (10ns optional -10)
Delays.....	From input trigger 50ns to > 10ms in 10ns steps. 10us minimum between 1st – 2nd frame.
Gain Control	User programmable 0 to 100% (12 bits).
Triggering	TTL Positive, TTL Negative, Make / Break (self powered). Velocity Trap - Measures velocity on-the-fly & automatically triggers.
Outputs.....	User Programmable TTL Gate monitor. Four User Programmable TTL 'strokes'
Protection	Built in mechanical capping shutter.
Interface	Gigaset Ethernet (GigE) direct to PC.

Environmental

Dimensions (approximate).....	105 x 85 x 366mm (excluding objective lens).
Weight	3.75 Kg.
Power.....	35W max (90-264VAC).
Temperature	0°C to 40°C, non-condensing humidity.
Construction	Aluminium housing.
Mounting	2 x 3/8-16 UNC thread on base.
Documentation and Software.....	Supplied on CD.
Packaging	Heavy duty IP65 flight box.
CE and RoHS (Pb free)	

Software

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