



**LA VISION**

WE COUNT ON PHOTONS

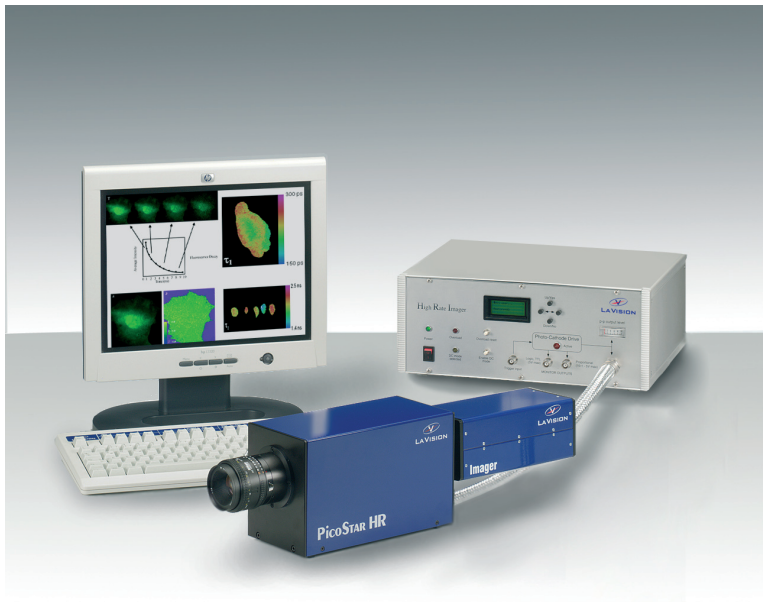
## PicoStar HR

family of ultra-high rep. rate, fast gated camera systems for time-gated imaging and spectroscopy

PicoStar HR is ideal for applications in conjunction with high rep. rate lasers

### Winner of the Photonics Circle of Excellence Award

- ▶ ultra-high gating rate: up to 110 MHz fast
- ▶ gating: <300 ps
- ▶ gain modulation: up to 1 GHz
- ▶ spectral response: 200...900 nm
- ▶ sensitivity: single photon range
- ▶ upgrade: gate width down to 80 ps @10 kHz rep. rate



### Applications

- ▶ time-gated imaging
- ▶ spectroscopy and microscopy
- ▶ fluorescence lifetime imaging microscopy, FLIM
- ▶ dynamics of photo-induced processes
- ▶ gating and ranging, 3D LIDAR
- ▶ multifocal multi-photon microscopy
- ▶ single molecule imaging
- ▶ time-gated Raman imaging
- ▶ plasma spectroscopy
- ▶ combustion diagnostics
- ▶ magnetic domain switching

- ▶ CCD: 1376 x 1040 array, 12 bit, 65% QE, binning and windowing, other CCDs optional
- ▶ fast readout: 16 MHz pixel rate at 12 bit  
10 frames/s (1376 x 1040) or 20 frames/s (1376x 520), with binning
- ▶ coupling: via relay lens; fiber optic optional
- ▶ DaVis software: camera control, image acquisition, processing and analysis, application modules e.g. FLIM package, control and synchronization to external devices, programming of all features in 'C' syntax.
- ▶ system options: delay lines and generators, optical trigger unit, trigger resynchronizer, stepping motor, filters, A/D and D/A interfaces, application software.

### LA VISION UK LTD

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## PicoStar HR

**PicoStar HR is a turn-key system.**

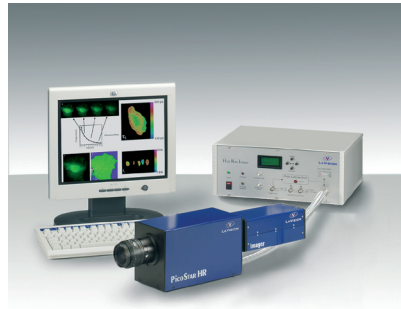
It consists of camera head, image intensifier control unit, CCD, TTL-I/O interfaces, PC and software.

A variety of **CCDs** up to 16 bit are available.

The **image intensifier** is designed for fast gating at ultra high repetition rates.

A state-of-the-art pulse generator drives the image intensifier at rep. rates up to 110 MHz and gate width < 300 ps.

The **DaVis software** allows control of all camera functions (gate width, gain, delay, binning, windowing) and synchronization with peripheral devices. Macros can be generated for automation of image acquisition, processing and analysis using 'C' syntax command language.



### General System Specifications:

<b>Image intensifier gate</b>	<300 ps FWHM @ up to 110 MHz rep. rate
<b>System dynamic</b>	depends on selected CCD
<b>Sensitivity</b>	typical: >100 counts/photoelectron
<b>Spectral range</b>	200 – 900 nm

### CCD Cameras:

<b>Range of CCDs</b>	12 to 16 bit, full frame or progressive scan, PCI camera interface, lens or fiber coupling
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### Image Intensifier and Electronics

<b>Design</b>	gen. II, single stage MCP
<b>Diameter</b>	18 mm
<b>Photocathode</b>	S20 (200-750 nm), S25 (400-900 nm) or S20G (optimized@550nm)
<b>Operating modes</b>	comb, logic, modulation, DC
<b>Time-domain</b>	<300 ps...1 ms; jitter <20 ps
<b>Frequency-domain</b>	gain modulation up to 1GHz
<b>Spatial resolution</b>	>15 lp/mm

### DaVis software:

<b>Operating system</b>	Windows
<b>Data acquisition</b>	camera, timing, user programmable
<b>Data processing</b>	buffer, column, row or pixel addressing
<b>Command language</b>	'C' syntax for system and user functions
<b>Communication</b>	RS 232 (GPIB optional), USB, TTL-I/O interface, PicoStar application module

### System Computer and Sync. Board

PC with up-to-date processor, monitor, TTL-I/O and CCD interface

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## Picosecond Delay Unit

<b>Adjustable delay range</b>	0-cycletime (max. 50ns)
<b>Increments</b>	1 ps
<b>Remote control</b>	RS 232
<b>Delay switching time</b>	approx. 1 ms

## Options

<b>Spectrograph</b>	various vendors; adapter for camera
<b>Microscope</b>	various vendors; C or F-mount coupling
<b>Laser</b>	pulsed or modulated laser diodes, LEDs
<b>Peripheral devices</b>	delay generator, optical delay lines, spectrograph, stepping motor, shutters, filter wheel, piezo drives
<b>Optics</b>	lenses (e.g. UV-Nikkor), telescopes, filters, long distance microscopes (Questar), macro lenses
<b>Additional A/D &amp; D/A channels</b>	simultaneous recording (e.g. single shot control)

Data provided by LaVision is believed to be true. However, no responsibility is assumed for possible inaccuracies or omissions. All data are subject to change without notice.

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