

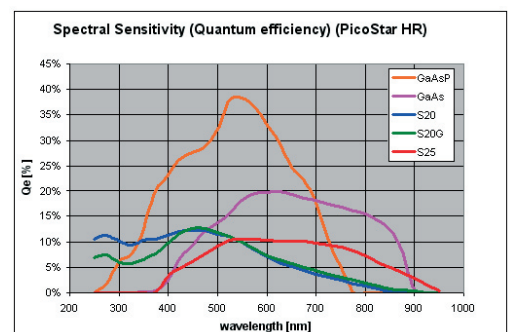
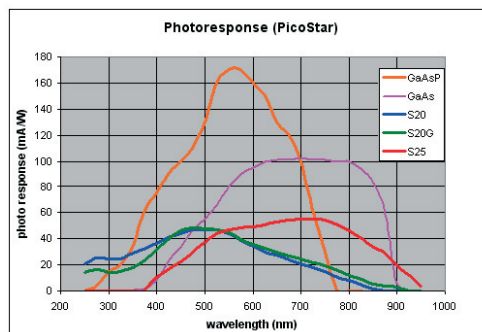
PicoStar 12

intensified, gated, CCD
camera system with
exposure times < 100 ps,
gating rates up to 10 kHz

LaVision's **PicoStar 12** is an intensified, gated, camera system featuring exposure times < 100 ps; 12 bit CCD camera, excellent signal to noise ratio; pixel readout rate 16 MHz. It is suitable for applications in time-resolved imaging and spectroscopy in conjunction with pulsed lasers. Image intensifiers with different photocathode types (S20, S25, GaAs) are available. The camera system consists of an image intensifier coupled to the CCD camera via a relay lens, intensifier control unit, high precision delay unit and a system computer with TTL I/O board. All intensifier and CCD camera functions, peripheral devices as well as image acquisition and processing are controlled via LaVision's proprietary Windows compatible DaVis software.

General System Specifications:

Min. gate width	<100 ps
Sensitivity	> 200 counts/photoelectron @ max. gain
System dynamic	~ 2000:1
Spatial resolution	> 15 lp/mm
Lens connector	Nikon-F or optional C-mount
Spectral range	S20, S20G, S25, GaAs, GaAsP (see curves)



CCD Camera

Sensor	Interline Progressive Scan with „lens-on-chip“
Average dark current	< 0.1 e-/pixel.sec
Digitization/readout rate	12 bit @ 16 MHz
Readout noise	4...5 e- (high gain); 5...6 e- (low gain)
Frame rate	10 frames/s, 20 frames/s (2 x 2 binning)
Binning	Horizontal (1...8), Vertical (1...32)
Active image array	1370 (H) x 1040 (V)
Pixel size	6.45 μm x 6.45 μm
Max. quantum efficiency	65% @ 550 nm
A/D conversion factor	2 e-/count (high gain); 4 e-/count (low gain)
Antiblooming	Standard: > 1000; Low Light: > 4
Cooling	2-stage Peltier with forced air regulated to -12°C
Exposure control	var. exposure time (1 ms-1000 s),
Camera interface	PCI, data transfer (coax; FOL optional), control output, trigger input

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Image Intensifier Head and Electronics

Design 18 mm, proximity focused, single stage MCP
Phosphor P43 (1% decay time: 3 ms)
Coupling to CCD lens coupling ($\eta > 12\%$; 2:1)
Vignetting of optics < 3%

Gate widths:

Fast gate mode (triggered) <100, 100, 150, 200, 300 ps; 1, 2, 3 ns
Slave gate mode slave to TTL (10 ns...1 ms)
Gating repetition rate up to 10 kHz
Jitter (fast gate mode) < 10 ps
Trigger TTL (rise time < 5 ns)
Intrinsic delay < 20 ns (typ.)

LaVision's DaVis software

High performance Windows compatible software featuring camera control, single and continuous image grabbing, burst mode, powerful image and data processing tools, 3D on-screen graphics, process control via macro programs, binning, skipping and windowing, TTL synchronisation and control of peripheral devices such as laser, spectrograph, stepper motor, shutter, oscilloscope and other devices. Communication: RS232.

Phase shift delay unit

Picosecond Delay Generator 0 - 20 MHz (#1108029): see separate datasheet

Ordering Information

part number	Description
1101099	PicoStar, S 20 photocathode
1101101	PicoStar, S 20G photocathode
1101100	PicoStar, S 25 photocathode
1108054	Sync. Board type PTU basic
1108029	Picosecond Delay Generator 0-20 MHz
1108027	Optical Trigger Unit - OCF
1108030	Trigger Resynchronizer

Systems with GaAs or GaAsP cathodes on request

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.

May-08

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