

ROSS 2000 Streak Camera



The ROSS 2000 Streak Camera is Sydor Instruments' versatile large format photocathode streak camera system. The architecture of the ROSS 2000 is modular allowing users to change modules to meet changing experimental requirements. When coupled to a spectrograph it is ideally suited for recording spectroscopic data of time-resolved experiments. Examples include time-resolved absorption emission spectroscopy of atomic shock emissions as well as detonics. All ROSS Streak Cameras come bundled with Sydor's ROSS Remote Application and Analysis Software which provides full control of streak camera, acquisition and display of streak image, image processing, file storage and file exportation.

ROSS 2000 BASE MODULE	KEY PERFORMANCE PARAMETERS
Temporal Resolution	36 ps
Photocathode Dimensions	20 mm
Photocathode Type	S20 (additional photocathode options available)
Input Window	Fused Silica
Screen Phosphor	P43
Spatial Magnification	0.7 – 1.5
Image Intensifier	Single stage 25 mm MCP, 1 - 1000 Adjustable Gain
Gating (MCP)	Extinction Ratio $>10^6$, 3 ns FWHM @ 200 kHz
Gating (Photocathode)	Extinction Ratio $>10^4$; Delay <100 ns, Rise Tim: <10 ns, Fall Time 30ns
Shutter	35 mm Electro Mechanical
Interface	Ethernet 10/100 BaseT
Software	ROSS Streak Camera Control and Analysis Software
Power	120/240 VAC 50-60 Hz

Specifications subject to change

The ROSS 2000 utilizes an achromatic all reflective Offner relay imaging system to support the user's direct imaging needs. Based upon the user's experimental needs, the ROSS 2000 can be directly coupled to a spectrometer.

INPUT OPTICS	KEY PERFORMANCE PARAMETERS
UV/VIS/IR Input Optics	Aluminum w. MgF ₂ broadband coating
	250 nm – 1150 nm, F/4.0, 1:1 Magnification
	Continuously variable slit width 50µm to 1mm
	35 mm field of view
Spectrograph	150 or 300 mm Focal Length, Multiple Grating Turret, Fiber Input Custom spectrometer integration available

Specifications subject to change

The **Triggered Sweep Module** provides for up to 12 sweep speeds ranging from 500 picoseconds to one millisecond. This enables users to configure their system with the speeds most appropriate for their experimental needs within one module. Additional sweep module can be purchased to accommodate multiple users in more dynamic environments. Sweep modules can be easily swapped out by the user.

TRIGGERED SWEEP MODULE	KEY PERFORMANCE PARAMETERS
Temporal Resolution	<36 ps Single Shot (Tube Limited)
Sweep Window	500 ps – 1 ms (extended range on request)
Sweep Speeds	12 user selectable speeds
Trigger Jitter	<25 ps
Sweep Repetition Frequency	10 Hz
Monitor Out	TTL
Trigger Input Signal	±5 V 50Ω

Specifications subject to change

The ROSS 2000 supports several **Recording Systems** allowing the user to select the best configuration for their research and experimental needs. Each comes with the output optics and mechanical structure for coupling the recording system to the Base Module.

RECORDING SYSTEMS	KEY PERFORMANCE PARAMETERS
Standard Camera	1360 x 1040 Resolution Interline CCD
	Lens Coupled
	12 bit A/D
	10 e- Read Noise
	30 frames per second max
	IEEE 802.3 1000baseT interface
High Resolution Camera	2452 x 2056 Resolution Interline CCD
	Lens Coupled
	14 bit A/D
	5 e- Read Noise
	9 frames per second max
	IEEE 802.3 1000baseT interface
Cooled Camera	1392 x 1040 Resolution Interline CCD
	Lens Coupled
	16/14 bit A/D
	TE cooling to -55°C with fan
	11.6 frames per second max
	USB 2.0 PC interface

Specifications subject to change

Accessories / Options

ACCESSORIES	PERFORMANCE FEATURE
CCD Trigger Combiner Box	Enables External CCD Trigger
Serial to Fiber Adapter	Optical Isolation of camera controls
Optical Trigger Module	Optical to electrical trigger
SRS DG645	Digital Delay / Pulse Generator / Gate Trigger
CFD Trigger Module	Constant Fraction Discriminator reduces jitter in variable amplitude triggers
Passive Delay Generator	Jitter free, drift free, adjustable, high-bandwidth signal delay
Liquid Chiller	Air-cooled liquid thermoelectric chiller w/ PID temperature controller
PC and Monitor	Tower w/ Flat Screen -or- Laptop
Multi-channel Fiber Input	20 total fiber input channels
Fiberized Laser Pulser	DC to 10MHz, 665 nm
Fiberized Laser Pulse Generator	Fiber coupled 40 ps, 650 nm laser pulse, DC to 300 kHz rep rate
2 GHz Comb Generator	2 GHz, 500 MHz Timing Reference
Spectrometer Interface Module	Light tight coupling between ROSS 2000 and spectrometer for ease of alignment, with fine focus adjustment

Specifications subject to change

Optional products & services offered:

- Instrument & accessory storage cases
- Service, installation, & technical support
- Extended warranty programs
- Analytical software packages and development
- Accessories for interfacing with other instrumentation
- Electrical and fiber optic cables made to your specifications