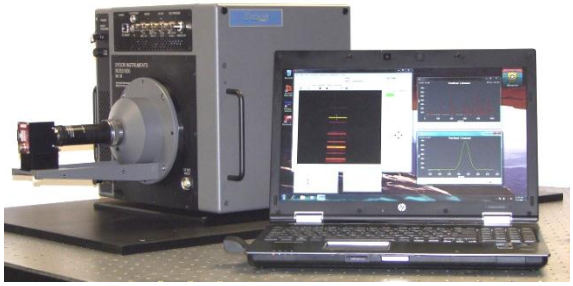
SYDOR INSTRUMENTS, LLC

Product Specifications



ROSS 1000 Streak Camera

The ROSS 1000 Streak Camera is Sydor Instruments' most versatile streak camera system capable of single shot, repetitive scan, and synchroscan operations. The architecture of the ROSS 1000 is modular allowing users to change modules to switch modes of operation making it the ideal streak camera platform for laboratory environments supporting a range of experimental requirements. The ROSS 1000 system includes an external MCP to improve the gain of the system and enable gating as required. When coupled to a spectrograph it is ideally suited for recording spectroscopic data of time-resolved experiments. 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 1000 BASE MODULE	KEY PERFORMANCE PARAMETERS
Temporal Resolution	2 picoseconds
Photocathode Dimensions	2 mm x 8 mm
Photocathode Type	S20 200 – 850 nm (Bialkali, S20LN, S25 available)
Input Window	Fused Silica (others available)
Screen Phosphor	P43 (Others available)
Spatial Magnification	2
Image intensifier	Single stage 25 mm MCP, 1 - 1000 Adjustable Gain
Gating (MCP)	Extinction Ratio >10^6, 3 ns FWHM @ 200 kHz max
Shutter	25 mm Electro Mechanical
Interface	Ethernet 10/100 BaseT
Software	ROSS Streak Camera Control and Analysis Software, Windows Compatible
Power	120/240 VAC 50-60 Hz

Specifications subject to change

The ROSS 1000 supports several **Input Optics Options** allowing the user to select the best configuration for their research and experimental needs

INPUT OPTICS OPTIONS	KEY PERFORMANCE PARAMETERS
Input Slit	0 – 6 mm, Manual micrometer adjustment
UV/VIS Input Optics	190 nm – 1000 nm, Effective F value 4.0, 0.8 Magnification
VIS/IR Input Optics	400 nm – 1100 nm, Effective F value 4.0, 0.8 Magnification
UV/VIS/IR Input Optics	250 nm – 1150 nm, Effective F value 4.0, 1.0 Magnification (All Reflective)
Spectrograph	300 mm Focal Length, Triple Grating Turret, Fiber Input (others available)

Specifications subject to change

Sydor's **Synchroscan Module** provides for continuous sampling of the streak camera based on the input frequency of a source laser. The synchroscan electronics are designed to control drift and jitter to better than the temporal resolution and can be factory set to match frequencies between 75 MHz and 250 MHz depending on the customer's source laser.

SYNCHROSCAN MODULE	KEY PERFORMANCE PARAMETERS
Synchroscan Frequency	75 MHz, 80 MHz, 100 MHz, 250 MHz (other frequencies available)
Synchroscan Frequency Range	Synchroscan Frequency ± 0.2 MHz Typical
Temporal Resolution	2 ps
Trigger Jitter	Better than temporal resolution
Sweep Window	200 ps to 1/6 synchroscan frequency (2 ns @ 75 MHz)
Sweep Speeds	4 user selectable speeds via software
Trigger Input signal	0±6 dBm / 50 Ω sinusoidal signal

Specifications subject to change

The **Triggered Sweep Module** can be swapped with the Synchroscan Module to allow the Streak Camera to operate in single shot or repetitive scan mode in response to an input trigger. The standard sweep module provides for up to sixteen sweep speeds ranging from 200 pico seconds to one millisecond. This enables users to configure their system with the speeds most appropriate for their experimental needs within one module. Sydor's sweep module can be customized to accommodate additional speeds if required. For more dynamic environments, Sydor offers an option to add another eight speeds for a total of twenty-four speeds in one module.

TRIGGERED SWEEP MODULE	KEY PERFORMANCE PARAMETERS
Temporal Resolution	2 ps Single Shot, < 50 ps Repetitive Shot Mode
Sweep Window	200 picosecond to 1 millisecond (extended range on request)
Sweep Speeds	16 user selectable speeds (option for 8 additional speeds – total 24)
Trigger Jitter	~10 ps
Trigger Delay	13 ns at fast range
Sweep Repetition Frequency	2.5 kHz @ 200 ps, 2MHz @ 20 ns
Monitor Out	TTL
Trigger Input signal	+ 5V 50 Ω

Specifications subject to change

The **Synchronous Blanking Module** can be added to the ROSS 1000 to enable synchronous blanking during synchroscan operation.

SYNCHRONOUS BLANKING MODULE	KEY PERFORMANCE PARAMETERS
Synchroscan Frequency	75 MHz, 80 MHz, 100 MHz (other frequencies available)
Horizontal shift width	Up to 12.5 mm

Specifications subject to change

The **Dual Scan Module** can be added to the ROSS 1000 to enable slow sweep of the orthogonal direction for synchroscan or single sweep modules.

DUAL SCAN MODULE	KEY PERFORMANCE PARAMETERS
Temporal Resolution	70 ps
Sweep Window	10 ns to 75 ms (extended range on request)
Sweep Speeds	16 user selectable speeds (option for 8 additional speeds – total 24)
Trigger Jitter	~100 ps
Trigger Delay	40 ns at fastest range
Sweep Repetition Frequency	10 kHz max
Trigger Input signal	+ 5V 50 Ω

Specifications subject to change

The ROSS 1000 supports several **Recording Systems** allowing the user to select the best configuration for their research and experimental needs. Each comes with output optics and mechanical structure for coupling the recording system to the Base Module.

RECORDING MODULES	KEY PERFORMANCE PARAMETERS
Standard Camera	1360 x 1040 Resolution Interline CCD
	Lens coupled
	12 bit A/D
	10e- Read noise
	30 frames per second max
	IEEE 802.3 1000baseT interface
Cooled Camera	1392 x 1040 Resolution Interline CCD
	Lens coupled
	16/14 bit A/D
	2.4e- Read noise @ 1MHz
	TE cooling to -55°C with fan
	11.6 frames per second max
	USB 2.0 PC interface
High Resolution Cooled Camera	2048 x 2048 Resolution
	Full frame three phase CCD
	1:1 fiber relay coupled
	16 bit A/D
	4.5e- Read noise @ 200kHz
	TE cooling to -40°C with Chiller
	200kHz, 400kHz 800kHz, 1000kHz Readout
	AIA Cable to PCI board 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
Additional 8-Sweep Speeds	Allows up to 24 speeds in one module
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, 665nm
2 GHz Comb Generator	Timing Reference

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