

Product Catalogue 2021

LIGHT ANALYSIS

Photonics E-Commerce Platform

One – Stop Solution:

Laser Systems | Optics |
Sensors | Vision Systems

International Network of Suppliers

>1500 Listed Parts

Globally Sourced: Leading
Innovation and Cost-Effective
Solutions

System Solutions Development

20+ Solutions Designed

>50 Years Cumulative
Experience

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Contact Information

Project Consultation and System Setup Service

Enquire about our System solutions and project development Services.

SIMTRUM's Project Development team provides technical expertise and commercial resources to bring your project or proposal to life. Tapping on a combined 50 years of experience grounded in Photonics, Optics, Physics and Engineering, we work with you to realise the project conceptually and provide the necessary resources to kick start your project.

[Learn More](#)

Technical Assistance / Request a Quote

Automatic Quotation Generation (Recommended)

To generate an automatic quotation request please login using the Sign In button (top right of the screen). New users will be given the opportunity to register. Join our mailing list and follow us on LinkedIn for constant updates.

Technical Assistance and Email Quotations

Recommended for Custom Orders and inquiries: For technical assistance, custom orders or email quotations, drop us an email at info@simtrum.com. We will get back to you within 3 working days.

Local Same Day Service / International Inquiries

SINGAPORE: For same day service, please contact us at 6996 0391. Office Hours: 9am - 6pm (+8GMT).

International: SIMTRUM provides worldwide shipping and inquiry management. Please contact us for more information.

[Contact Us](#)

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Photon Counters

Background

Photon counting is a technique in which individual photons are counted using a single-photon detector (SPD). In contrast to a normal photodetector, which generates an analog signal proportional to the photon flux, a single-photon detector emits a pulse of signal every time a photon is detected. All photon counting detectors feature timing resolutions in the picosecond range, depending on model and operating conditions.

Related Fields

- Quantum cryptography
- Quantum information processing
- Quantum imaging
- Quantum metrology

Applications

- > Time correlated single photon counting (TCSPC)
- > Fluorescence and luminescence detection
- > Fluorescence correlation spectroscopy
- > Flow cytometry, spectrophotometry

ID Series Visible Photon Counters ([Click here for specifications](#))

□ ID QUANTIQUE | SIMTRUM Partners | Light Analysis

ID Quantique is the leader in visible and infrared single photon detectors using avalanche photodiodes working in Geiger mode. It offers a variety of cost-effective detector for various applications.

With a timing resolution of only 40 ps and a dead time of 45 ns, ID100 and ID101 series module outperforms existing commercial detectors in all applications requiring single photon detection with high timing accuracy. The ID100 has excellent timing stability up to count rates of 20 MHz.



a) ID100 and b) ID101 Photon Counters



c) ID120

ID120 series consists of compact and affordable single-photon detector modules. Key advantages of the ID120 modules include high quantum efficiency up to 80%, a large active area and adjustable settings. The high quantum efficiency makes ID120 an ideal detector for single molecule applications, like fluorescence correlation spectroscopy (FCS) or fluorescence lifetime imaging (FLIM)

Model	Key Description	Peak Quantum Efficiency	Timing Resolution	Dark Count Rate ¹
ID100	High timing resolution and low dark count rate	35% EQ @500nm	40ps	Educational Standard Regular Ultralow noise
ID101	Industrial applications ²	35% at 500nm	40ps	Lowest 30hz
ID120	High Quantum Efficiency at 800nm Large active area 50um	80% QE @ 800nm 60% QE at 650nm	400ps	Educational Standard Regular Ultralow noise

¹Varying Dark Count rate models available as per application. Visit product page for numerical values. ² Compact and small system for OEM use.

ID Series Infrared Photon Counters ([Click here for specifications](#))

□ ID QUANTIQUE | SIMTRUM Partners | Light Analysis

Infrared Photon Counters has variety of applications where asynchronous photon detection is essential such as photon correlation or time of flight measurements. Moreover, it is especially suited for applications such as Lidar where compactness is strongly required.

ID281 Super Conducting Nanowire System



Optimized Wavelengths from 780 to 1625 nm

- High system detection efficiency: up to 90%
- Low time jitter
- Short recovery time and latch-free operation
- Up to 16 built-in detectors
- Automated standalone 0.8K cryostat with built-in cryogenic preamplifiers
- Integrated control, discrimination and time-tagging electronics

ID Qube NIR Gated & ID Qube Free Running



Optimized Wavelengths from 900 - 1700

- Compact & cost-effective
- Fast gated (up to 100 MHz & free-running)
- Ultra low noise (800 cps at 10%)
- Low jitter (150 ps)

ID230 Infrared Single Photon Detector



Optimized Wavelengths from 900 - 1700

- Adjustable quantum efficiency up to 25% 150 ps timing resolution
- Adjustable deadtime from 2 μ s to 100 μ s
- Adjustable temperature from -50°C to -90°C
- Single mode or multimode fibre optical input
- Best-in-class dark count rate : < 50 Hz at 10% quantum efficiency
< 200 Hz at 20% quantum efficiency

Model / Device	Key Description
ID281 - Super Conducting Nanowire System¹	The ID281 is a combination of simple and robust cryogenics, best-in-class time-tagging and control electronics to get high performance single-photon detection.
IDQ Qube NIR Gated	This system offers a gate input designed to avoid saturation or undesired detections. It makes use of the consequence of photon-absorption-induced avalanche event within the gate and quenching electronics to produce a dead time. This system can run in both Gated or Free-Running mode.
IDQ Qube Free- Running	This system was designed to provide fast avalanche quenching and limits the after pulsing rate. It allows the operation at reasonably short deadtimes of values that can be optimized depending on the applications and the efficiency level.
ID230 Infrared Single-Photon Detector	The ID230 is a Free-Running InGaAs/InP Photon Counter with Extremely Low Dark Counts.

¹ Arrange a call-back for setup assistance, or project based setups.

ID900 Timing Electronics ([Click here for specifications](#))

The ID900 Time Controller Series is an ideal central platform for laboratory experiments, where requires the combination of high-resolution event timing & correlation, time-to-digital conversion with multi-trigger delay generator is nowadays widely used in physics, bio and material science experiments.

It combines the functionalities of several electronic devices into a single and flexible platform:

- Time-tagger,
- TCSPC module,
- Delay generator,
- Digital conditional filters and counters



a) ID900 Time Tagger Device

The ID900 Series hardware platform consists of 4 input and 4 output signals that are interconnected internally via a fast FPGA circuit, which is easily programmable via a dedicated user-friendly interface. This unique architecture allows the user to configure customized logical operations between input signals and generate pulsed signals according to programmed rules and send them back to the experimental setup in real time via the available output ports.

Used to control and record data from sensors above and interface with computer software.

Model / Device	Key Description
ID900	3 Models available: ID900 – Delay Generator ID900 – TCSPC ID900 - Master

The ID900 is offered in 2 basic models (TCSPC) and (DG) with the option to upgrade to the master version. The maser version can be further upgraded to enable high resolution. See table below.

Model Information

Version	ID900-MASTER	ID900-TCSPC	ID900-DG
4IN	√	√	○
PRCSG	√	○	○
4OUT	√	○	√
HR	○	○	○

√ Included ○ Optional

- 4IN (4 input channels): histogramming, time-tagging, counting inputs
- PRCSG (processing): on-board timestamps processing, incl. filtering and logical gating operation
- 4OUT (4 output channels): pulse generator with configurable delay frequency, pulse width and external trigger
- HR (high resolution): upgrade to 4 high resolution inputs (8 ps RMS)

Beam Profilers

Background

Beam profilers capture, measure, and record the spatial intensity profile of a laser beam at a particular plane transverse to the beam propagation path. Beam profilers have a variety of applications in both industry and research laboratories. Applications include: alignment, laser monitoring and far field measurement.

FemtoEasy Beam Profilers ([Click here for specifications](#))

□ FemtoEasy | SIMTRUM Partners | Light Analysis

FemtoEasy BeamPro are optimized to handle a wide range of power levels, pulse duration, repetition rate, wavelength, and beam sizes. The Beam Profiler comes in 3 different series models – Standard, Low Profile Beam, Micro Beam.

Key Features

- Operational Spectral Range from 375nm to 1100nm (standard) and 190 to 1100nm for (plus models)
- High Resolution with Small pixel size of (1.67µm)
- Large Active area of 25µm

Integration and Software

The FemtoEasy BeamPro takes advantage of user-friendly software, providing thorough analysis and statistics of the laser beam. The BeamPro software uses standard communication protocols. It is therefore easily integrable in most complex environments. Several BeamPro can be controlled from a remote screen through the network. Compactness design, user-friendly and powerful software.



a) Standard Beam Profiler (36 x 39 x 46mm) b) Low Profile Beam Profiler (40 x 45 x 12.5) and c) Micro Beam Profiler (27 x 27 x 7)

Standard Beam Profilers

BEAM PRO MODELS SPECIFICATIONS													
MODEL NO: SBP -	0504-2.2	0704-2.4	0705-1.85	0807-3.45	1107-5.86	1111-5.5	1212-2.74	1308-2.4	1310-3.45	1412-2.74	2516-13.48	2525-12.65	
Spectral Range (nm)	375-1100 , 190-1100 (+ MODELS)										375-1100		
Sensor size (mm)	5.6 x 4.2	7.4 x 4.9	7.4 x 5.5	8.5 x 7.1	11.2 x 7.0	11.2 x 11.2	12.3 x 12.3	13.1 x 8.7	13.8 x 10.3	14.6 x 12.6	25 x 16.1	Φ25	
Sensor Format	1/2"	1/1.8"	1/1.7"	2/3"	1/1.2"	1"	1.1"	1"	1.1"	1.2"	4/3"	-	
Resolution	2560 x 1920	3088 x 2076	4000 x 3000	2456 x 2054	1920 x 1200	2048 x 2048	4504 x 4504	5472 x 3648	4096 x 3000	5328 x 4608	1920 x 1200	2048 x 2048	
Resolution (Mega Px)	5 Mpx	6.4 Mpx	12 Mpx	5 Mpx	2.3 Mpx	4.2 Mpx	20.2 Mpx	20 Mpx	12.3 Mpx	24.4 Mpx	2.3 Mpx	4.2 Mpx	
Pixel Size	2.2	2.4	1.85	3.45	5.86	5.5	2.74	2.4	3.45	2.74	13.48	12.65	
Shutter type	Rolling	Rolling	Rolling	Global	Global	Global	Global	Rolling	Global	Global	Global	Global	
Minimum beam diameter (Φ 1/e1, μm)	18	20	15	28	48	45	22	20	28	22	109	102	
Maximum acquisition frame rate (fps) ²	15	59	31	36	47	80	18	18	23	15	47	80	
Exposure time	Min (μs)	31 ³	8 ³	10 ³	27	20	40	60	67 ³	22	70	20	40
	Max (s)	1	1	1	1	1	1	1	1	1	1	1	1
Dynamic (dB)	60	73	70	73	70	58	71	72	72	71	70	58	
Sensor type	CMOS												
Bit depth	12												
PC Interface	USB 3.1												
Synchronization	Yes ⁴												
Dimensions (mm)	36 x 39 x 46										37 x 40 x 55		

¹ The minimum beam diameters are specified for a precision of measurement better than 1%. Smaller beam diameter can be measured but the error will progressively increase.

² Depending on the type of calculation, frame rate may vary.

³ Due to rolling shutter, the actual minimum exposure time to capture the whole beam will be limited by the beam size. The larger the beam, the longer the required minimum exposure time.

⁴ Requires the Trigger option.

Low Profile Beam Profilers

BEAM PRO MODELS SPECIFICATIONS											
MODEL NO: LPBP-	0302-4.8	0402-6	0503-2.9	0503-3.45	0504-2.2	0604-1.67	0605-5.2	0705-2.4	0705-3.45	0705-4.5	
Spectral Range (nm)	375-1100 , 190-1100 (+ MODELS)										
Sensor size (mm)	3.9 x 2.9	5.6 x 3.2	5.0 x 3.7	7.1 x 5.3	7.4 x 5.0	4.5 x 2.9	5.6 x 4.2	6.4 x 4.6	6.6 x 5.3	7.2 x 5.4	
Sensor Format	1/3.6"	1/2.8"	1/3"	1/1.8"	1/1.8"	1/3"	1/2"	1/2"	1/2"	11.8"	
Resolution	808 x 608	1936 x 1096	1448 x 1086	2056 x 1542	3088 x 2076	752 x 480	2560 x 1920	3480 x 2748	1280 x 1024	1600 x 1200	
Resolution (Mega Px)	0.5 Mpx	2.1 Mpx	1.6 Mpx	3.2 Mpx	6.4 Mpx	0.4 Mpx	4.9 Mpx	10.6 Mpx	1.3 Mpx	1.9 Mpx	
Pixel Size	4.8	2.9	3.45	3.45	2.4	6	2.2	1.67	5.2	4.5	
Shutter type	Global	Rolling	Global	Global	Rolling	Global	Rolling	Rolling	Rolling	Global	
Minimum beam diameter (Φ 1/e1, μm)	38	23	28	28	19	48	18	13	42	36	
Maximum acquisition frame rate (fps) ²	135	135	230	57	58	87	6	3	25	18	
Exposure time	Min (μs)	46	11 ³	17	24	13 ³	80	75 ³	340 ³	37 ³	20
	Max (s)	1	1	1	1	1	1	1	1	1	1
Dynamic (dB)	55	71	71	72	73	58	58	58	58	49	
Sensor type	CMOS										
Bit depth	10	12	12	12	12	10	12	12	10	10	
PC Interface	USB 3.1					USB 2					
Synchronization	Yes ⁴										
Dimensions (mm)	40 x 45 x 12.5										

¹ The minimum beam diameters are specified for a precision of measurement better than 1%. Smaller beam diameter can be measured but the error will progressively increase.

² Depending on the type of calculation, frame rate may vary.

³ Due to rolling shutter, the actual minimum exposure time to capture the whole beam will be limited by the beam size. The larger the beam, the longer the required minimum exposure time.

⁴ Requires the Trigger option.

Micro Beam Profilers

BEAM PRO MODELS SPECIFICATIONS							
MODEL NO: MBP -	0402-2.2	0403-3.75	0504-2.2	0604-3.45	0705-4.5	0704-2	
Spectral range (nm)	375 - 1100 190 - 1100 with UV option						
Sensor size (mm)	4.2 x 2.4	4.8 x 3.7	5.7 x 4.3	6.6 x 4.2	7.2 x 5.4	7.7 x 4.3	
Sensor format	1/3.7"	1/3"	1/2.5"	1/2.3"	1/1.8"	1/1.8"	
Resolution	1920 x 1080	1280 x 960	2592 x 1944	1920 x 1200	1600 x 1200	3840 x 2160	
	2 Mpx	1.2 Mpx	5 Mpx	2.3 Mpx	2 Mpx	8.3 Mpx	
Pixel size (µm)	2.2	3.75	2.2	3.45	4.5	2	
Shutter type	Rolling	Global	Rolling	Global	Global	Rolling	
Minimum beam diameter (Φ 1/e ¹ , µm)	18	30	18	28	36	16	
Maximum acquisition frame rate (fps) ²	15	54	14	160	60	45	
Exposure time	min (µs)	31 ³	30	52 ³	17	20	80 ³
	max (s)	1	1	1	1	1	1
Dynamic (dB)	58	58	58	71	49	71	
Sensor type	CMOS						
Bit depth	12						
PC Interface	USB 3.1						
Synchronization	Yes ⁴						
Dimensions (mm)	27 x 27 x 7						

1 The minimum beam diameters are specified for a precision of measurement better than 1%. Smaller beam diameter can be measured but the error will progressively increase.

2 Depending on the type of calculation, frame rate may vary.

3 Due to rolling shutter, the actual minimum exposure time to capture the whole beam will be limited by the beam size. The larger the beam, the longer the required minimum exposure time.

4 Requires the Trigger option.

Monochromators

Background

Monochromators are the critical component for many spectral applications breaking down an input spectrum into its components and taking high precision spectral measurements. The entrance ports, consisting of either slits or optical fibers are geometrically fixed.

Inside the monochromator, there is a diffraction grating that is rotates on its axis and acts as bandpass filters, filtering out segments of the input spectrum and recording high precision spectral measurements of the selected spectral range. The grating can be rotated manually or by motor.

Wide Range Adoption in Spectral Analysis

Semiconductor, biomedical, manufacturing, petrochemicals, pulp/paper, clinical labs, QC labs, research & development, pharmaceutical, environmental control, polymers, mining/metals.

F: 1/8m, 1/2m, 1/4m Monochromators ([Click here for specifications](#))

□ Spectral Products | SIMTRUM Partners | Light Analysis

DK Series Monochromators: Fully Software Enabled Monochromators

DK series Monochromators are a complete computer integrated solution, available in 1/4- and 1/2-meter focal lengths. Because each DK series contains its own microprocessor, it is controlled via a standard serial port (RS232), IEEE-488 port (GPIB) option, or with SP's hand-held controller option. This compatibility allows your computer, to make automatic adjustments of bandwidth through motorized slits, to select gratings, choose scan speeds and to store your changes in memory.

CM Series Monochromators: Single/Double Monochromator systems

CM series are compact and cost-efficient. Double grating turret allows for a broad spectral range coverage, which make them suitable for fluorescence, radiometry, process control, colorimetry, tunable filtering, Raman spectroscopy, among others.

Models	Focal Length	Key Features	Key specifications
CM Series	1/8m	Single Monochromator or Double (2) Monochromators connected in series.	Click here
DK Series	1/2m and 1/4m	Fully Motorized and Computer Interfaced System.	
Accessories	-	<ul style="list-style-type: none"> ▪ Mounts, Collimators, Optomechanical Components ▪ Infrared Optics (Optional) ▪ Slit and Grating Options ▪ Filter Wheels 	



a) CM110 Monochromator and b) DK480 (f=1/2m) Monochromator

Accessories

[Click here](#) for more accessories: Grating information, Filter wheels and more.

CM Accessories	
Part N/O	ITEM
CM1201	Controller: Handheld control module
AB202	Filter Mount
IR110	IR coating for internal optics
IR112	IR coating for internal optics
Special Slit Sizes	Special Slit Size
MCL-100	Collimator: Universal Output Conditioner
Click here for detailed information	

DK Accessories	
Part N/O	ITEM
DKBS	Bi-lateral slit option
DKGPIB	Connection
IR240 IR240SP*	Infrared (gold) coatings
IR480 IR480SP*	Infrared (gold) coatings
DK2401	Handheld monochromator controller
DK24PS	Cable
DK24MA	Cable
DK24IC	Cable
AB300	Filter Wheel
DKSP-to-DK	
AB200	Filter Mount
MCL-100	Collimator: Universal Output Conditioner
Click here for detailed information	

Autocorrelators

Background

Autocorrelators are used to measure pulse duration for ultrafast optics/lasers. Visit the SIMTRUM Knowledge Base for more information.

FemtoEasy Autocorrelators ([Click here for specifications](#))

□ FemtoEasy | SIMTRUM Partners | Light Analysis

Single Shot Autocorrelators

Single shot autocorrelators are offered in two models, Standard ROC and Micro ROC.

Multi-Shot Autocorrelators

Multi-shot autocorrelator, which It uses an optical delay line to scan the delay, and each pulse allows to know the intensity for a particular delay. It can measure pulses with energy as low as 50 pJ.

Editor's Note:
 True Single Shot measurement from as low as 10nj for niche and specialized applications, low power setups.

 Contact us for Additional Information, Videos and Technical specifications.

ROC offers the easiest user experience with intuitive software controls, they cannot be misaligned and no calibration or tweaking is needed. The ROC autocorrelators provide excellent technical performances and highly accurate measurements. The μ -ROC is specifically designed for OEM direct integration into laser heads or laser systems.

Series	Model	Spectral Range	Pulse Duration	Differentiation	Application
Single Shot (LINK)	ROC (LINK)	480-2100	From 5fs	It needs one single pulse to measure the duration.	Autocorrelators are used to measure pulse duration.
	Micro – ROC (LINK)	700-900 / 1020-1080	From 20fs	It needs one single pulse to measure the duration. Direct integration into laser heads or laser systems.	
Multi Shot Autocorrelator (LINK)		480-2000nm	From 50fs	The Multi Shot Autocorrelator is suitable for measuring pulses with energy as low as 50 pJ.	It has been specially developed for sources with sub-nJ energy per pulse. It allows the measurement of pulses from 50 fs to 40 ps in the standard version.



a) Micro-ROC (30 x 40 x 45) with pen for scale. b) ROC Single Shot Autocorrelator and c) Multi-shot autocorrelator

Frequency Resolved Optical Grating (FROG)

Background

FROG is a standard technique for measuring ultrashort laser pulses and is replacing autocorrelation, which only gave a rough estimate for the pulse length. It can measure both very simple and very complex ultrashort laser pulses, and does not require a reference pulse.

FROG stands for Frequency-resolved Optical Gating. It is a technique for a complete characterization of ultrashort pulses, and can retrieve the full time-dependant electric field, and the equivalent optical spectrum with spectral phase. In other words, FROG allow you to know the duration of your pulses, but also how to deal with spectral phase to reach the shortest possible duration.



a) FROG device by FemtoEasy

FemtoEasy FROG ([Click here for specifications](#))

□ FemtoEasy | SIMTRUM Partners | Light Analysis

Series/Model	Spectral Range	Pulse Duration	Pulse Energy	Differentiation
Single Shot (Fast Frog) (LINK)	480-2100 nm ¹	From 4fs	Dependent on repetition rate From 50pj at 1Ghz To 250uj for Single-shot	The Fast Frog Series comes in six models, covering different pulse duration ranges from sub-5 fs to 10ps, over a broad spectral range.
Multi Shot (MS-FROG) (LINK)	500 - 2000nm ¹	From 50fs	From 50PJ at 100MHz	The high scan speed allows real-time operations for measurement and optimization. They guarantee high spectral resolution and the best performances for the application of pulse characterization. Configurable to end user laser specifications.

¹ Effective spectral bandwidth to be defined within the accessible spectral range according to customer's requirements. Additional spectrometers can be provided to address different spectral windows.

Imaging Spectrometer

Background

The Mini Spectrometers is a cost-effective tool with a wide range of application such as low light level fluorescence and Raman measurements, absorbance, transmission and emission analysis of solutions, solids and gases. Mini Spectrometers would your first choice If you require to determine concentration of solutions or find out PL of your sample with higher spatial resolution.

Mini Imaging Spatial Spectrometers [\(Click here for specifications\)](#)

□ FemtoEasy | SIMTRUM Partners | Light Analysis

Gives Spatial and Spectral Information of a light source

The Mini Imaging Spatial Spectrometer provides users a with Spatial and Spectral information about the input beam. This innovative spectrometer gives access to the spatially resolved spectrum of your sources. Thanks to its unique compactness, the MISS allows vertical and horizontal spatial chirp measurements at any position of your beam path. It can easily be integrated at different stages of amplified laser systems. Use it in free space mode to take benefit of the spatial resolution, or with a fiber input, like a regular spectrometer.

Key Features

- Compact design
- Horizontal and vertical spatial chirp measurement
- User-friendly and powerful software (STAR : Software Technology for Acquisition and retrieval)
- High spatial and spectral resolution
- Different models from 240 to 1100 nm
- Input beam diameter up to 12.7 mm
- Single shot capable up to 75 kHz, synchronization options available
- Fiber input compatible



Specifications							
MISS models	UV-VIS	IR	Yb	UV-VIS-L	IR-L	TiSa-L	Broadband-L
Type	standard			large beam (L)			
Spectral range (nm)	240 - 800	545 - 1100	900 - 1090	250 - 700	655 - 1100	360 - 1025	280 - 1100
Camera resolution	2046 x 1542 3 Mpx			2448 x 2048 5 Mpx			5472 x 3478 20 Mpx
Spectral sampling (nm/px)	0.29	0.27	0.1	0.23	0.22	0.28	0.16
Optical spectral resolution (nm) ¹	0.66	0.64	0.23	0.44	0.43	0.44	0.44
Input beam size (mm)	6.6			12.7			
Max spatial resolution (μm)	4.3			5.2			3.6
Exposure time min – max (ms)	0.024 - 1 000			0.013 - 30 000			0.011 ² - 30 000
Shutter type	Global						Rolling
Detection	CMOS 12 Bits – 72 dB						
PC Interface	USB 3.1						
Dimensions (mm)	102 x 101 x 52			117 x 102 x 52			

Spectrometers

Hyperspectral Imaging

Background

Hyperspectral imaging systems are imaging spectrometer systems that record chemical or physical information precisely and reliably in real time. Hyperspectral imaging sensors usually comprise hundreds of narrow spectral bands, providing a complete spectrum of image data for every pixel in the field of view. The spectral data can be evaluated by means of a chemometric data analysis and thus enable reliable classifications or quantifications.

The goal of hyperspectral imaging is to obtain the spectrum for each pixel in the image of a scene, with the purpose of finding objects, identifying materials, or detecting processes.

Applications

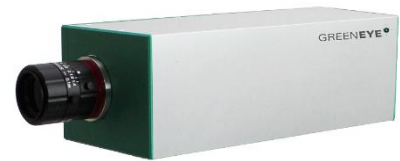
- Quantification: Determines abundance of material
- Characterization: Determines variability of identified materials
- Discrimination: Determines unique identity of the forgoing genetic categories
- Classification: Separate materials into spectrally similar group
- Detection: Determines presence of materials, objects, activities, or event of interest

Why Use Hyperspectral Imaging?

- Spectral signature are powerful discriminators.
- Can be used for quantification.
- Hyperspectral imaging capture full resolution of spectral signatures.
- Ideal for passive monitoring or research applications.

Wide Spectral Coverage

No prior knowledge of the sample is required as a wide spectral range is covered. Because an entire spectrum is acquired at each point, the postprocessing allows all available information from the dataset to be mined. Hyperspectral imaging camera have a variety of applications in field of ecology and surveillance, as well as historical manuscript research. The imaging NIR hyperspectral imaging can also be used to rapidly monitor the application of pesticides to individual seeds for quality control of the optimum dose and homogeneous coverage.



a) Green Eye VIS Hyperspectral Imaging

Hyperspectral Cameras ([Click here for specifications](#))

□ INNO-SPEC | SIMTRUM Partners | Light Analysis

Model	Wavelength Spectrum	Frame Rate	Key specifications
Black Eye	2900 to 4200nm	383 Hz @ integration time < 2.6ms	Comprehensive background information and technical web data are available on our website. Click here
Green Eye	400 to 1000nm	Up to 54 fps full resolution (8 bit)	
Red Eye	950 to 1700nm or 1200-2200nm	330 fps (full frame) / 4200 fps (4 bands)	

Vacuum Ultraviolet (VUV) and Extreme Ultraviolet (XUV) Spectroscopy

Background

Comprehensive spectroscopy solutions in the deep UV range with vacuum systems.

High-energy radiation is interesting for various applications in Optics and material research thanks to synchrotron or laser-based light sources that are available today, this field of physics is also gaining importance in medicine and biology.

Due to its ionizing properties radiation from the spectral range below 200nm is more difficult to detect than Ultraviolet or visible light. Measurement requires at least an oxygen-free atmosphere and below 120nm a vacuum of typically 10-4mbar.

Application

- High-harmonic generation sources
- Attosecond science
- Intense laser-matter interaction
- Free-electron lasers
- Laser and discharge produced plasma sources
- X-ray lasers
- Laser driven secondary sources

XUV/VUV Spectrometers ([Click here for specifications](#))

☐ H+P Spectroscopy | SIMTRUM Partners | Light Analysis

easyLIGHT VUV is an intuitive and compact spectrograph for the VUV spectral range with spectral coverage extends from 80nm to 300nm. The aberration-corrected grating provides best-in-class efficiency of up to 43%. The combined spectrograph and monochromator functionality gives highest flexibility. Entrance and/or exit slits are continuously adjustable manually or motorized.



a) easy Light spectroscopy system

Category	XUV		VUV	
Model	Wavelength	Key Features	Wavelength	Key Features
easyLIGHT	30 to 250 nm	<ul style="list-style-type: none"> • flat-field normal-incidence spectrometer • highest efficiency due to proprietary no-slit design • wavelength range from 30 to 250 nm • most compact spectrometer in its class • modular, turn-key design 	80 to 300 nm	<ul style="list-style-type: none"> • spectrograph and monochromator functionality • grating with best-in-class efficiency • wavelength range from 80 to 300 nm • high accuracy wavelength setting • compact and modular design
maxLIGHT	1 to 200 nm	<ul style="list-style-type: none"> • flat-field grazing-incidence spectrometer • highest efficiency due to proprietary no-slit design • wavelength range from 1 to 200 nm • integrated beam profiler • modular, turn-key design 	1 to 200 nm	<ul style="list-style-type: none"> • flat-field grazing-incidence spectrometer • highest efficiency due to proprietary no-slit design • wavelength range from 1 to 200 nm • integrated beam profiler • modular, turn-key design
highLIGHT	1 to 100 nm	<ul style="list-style-type: none"> • flat-field grazing-incidence spectrometer • best-in-class spectral resolution • wavelength range from 1 to 100 nm • high-efficiency no-slit mode 		

Modular Spectrometers (Fibre Spectrometers)

Fibre Spectrometers ([Click here for specifications](#))

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Spectroscopy in the UV – NIR Range with vary degrees of resolution.

Model Overview	Description	Key Specifications
FX Series	UV-VIS-NIR General Purpose Spectrometers	Comprehensive background information and technical web data are available on our website. Click here
PG Series	UV-VIS-NIR High-Resolution Spectrometers	
NOVA Series	Raman Spectroscopy Cooled Spectrometers	
NIR Series	NIR General Purpose Spectrometers. (900 – 1700nm and 900 – 2500nm models)	



a) FX Series General Purpose Spectrometer and b) NOVA-cooled Spectrometer Series (for Raman and Angular Resolved Spectroscopy)

FX2000 Series Spectrometers (UV-VIS-NIR)

Model	Wavelength Range (nm)	Wavelength Exposure per Pixel (nm) (Total pixel count: 2048)	Slit Width (um)				
			10um	25um	50um	100um	200um
			Optical Resolution FWHM (nm)				
FX2000-200-1100	200-1100	0.44	0.79	0.97	1.54	2.72	5.45
FX2000-300-1100	300-1100	0.30	0.66	0.78	1.21	2.30	4.73
FX2000-350-1100	350-1100	0.37	0.62	0.73	1.14	2.16	4.43
FX2000-380-960	380-960	0.28	0.57	0.65	0.85	1.61	3.20
FX2000-240-900	240-900	0.32	0.48	0.64	0.97	1.90	3.83
FX2000-200-755	200-755	0.27	0.46	0.54	0.84	1.63	3.28
FX2000-200-535	200-535	0.16	0.29	0.36	0.51	0.93	1.86
FX2000-365-700	365-700	0.16	0.36	0.41	0.51	0.85	1.73
FX2000-775-1100	775-1100	0.16	0.40	0.41	0.48	0.68	1.27
FX2000-200-425	200-425	0.11	0.24	0.27	0.36	0.59	1.19

FX4000 Series Spectrometers (UV-VIS-NIR)

Model	Wavelength Range (nm)	Wavelength Exposure per Pixel (nm) (Total pixel count: 3648)	Slit Width (um)				
			10um	25um	50um	100um	200um
			Optical Resolution FWHM (nm)				
FX4000-200-1100	200-1100nm	0.27	0.79	0.91	1.48	2.66	5.33
FX4000-300-1100	300-1100nm	0.22	0.64	0.77	1.18	2.26	4.63
FX4000-350-1135	350-1100nm	0.22	0.60	0.72	1.11	2.12	4.34
FX4000-380-960	380-960nm	0.16	0.56	0.64	0.83	1.59	3.13
FX4000-240-900	240-900nm	0.18	0.47	0.63	0.94	1.86	3.76
FX4000-200-755	200-755nm	0.15	0.44	0.53	0.82	1.61	3.21
FX4000-200-535	200-535nm	0.09	0.29	0.34	0.50	0.92	1.83
FX4000-365-700	365-700nm	0.09	0.34	0.39	0.50	0.84	1.70
FX4000-775-1100	775-1100nm	0.09	0.38	0.41	0.46	0.66	1.25
FX4000-200-425	200-425nm	0.06	0.23	0.27	0.35	0.58	1.16

PG4000-C5 Series Spectrometers (UV-VIS-NIR)

Model	Wavelength Range (nm)	Wavelength Exposure per Pixel (nm) (Total pixel count: 3648)	Slit Width (um)				
			10um	25um	50um	100um	200um
			Optical Resolution FWHM (nm)				
PG4000-C5-1	180-400	0.06	0.21	0.24	0.4	0.79	1.6
PG4000-C5-2	395-602	0.06	0.2	0.24	0.39	0.81	1.58
PG4000-C5-3	597-788	0.05	0.15	0.21	0.39	0.77	1.57
PG4000-C5-4	783-955	0.05	0.15	0.22	0.38	0.75	1.5
PG4000-C5-5	950-1100	0.04	0.14	0.21	0.35	0.68	1.36

PG4000-C3 Series Spectrometers (UV-VIS-NIR)

Model	Wavelength Range (nm)	Wavelength Exposure per Pixel (nm) (Total pixel count: 3648)	Slit Width (um)				
			10um	25um	50um	100um	200um
			Optical Resolution FWHM (nm)				
PG4000-C3-1	277-491	0.06	0.06	0.21	0.25	0.4	0.8
PG4000-C3-2	486-685	0.06	0.05	0.19	0.25	0.38	0.79
PG4000-C3-3	680-1100	0.05	0.12	0.43	0.53	0.79	1.58

NOVA Series Spectrometers (UV-VIS-NIR)

Model	Wavelength Range (nm)	Slit Width (um)				
		10um	25um	50um	100um	200um
		Optical Resolution FWHM (nm)				
NOVA-200-980	200-980nm	1.68	1.98	2.52	3.58	6.78
NOVA-325-1100	325-1100nm	1.67	1.97	2.50	3.56	6.74
NOVA-360-930	360-930nm	1.23	1.45	1.84	2.62	4.95
NOVA-200-590	200-590nm	0.84	0.99	1.26	1.79	3.39
NOVA-380-760	380-760nm	0.82	0.97	1.23	1.74	3.30
NOVA-740-1100	740-1100nm	0.78	0.92	1.16	1.66	3.13
NOVA-200-390	200-390nm	0.41	0.48	0.61	0.87	1.65

NIR Series Spectrometers

Model	Wavelength Range (nm)	Slit Width (um)				
		10um	25um	50um	100um	200um
		Optical Resolution FWHM (nm)				
NIR-900-1700	900-1700nm	4.7	5.3	6.3	7.8	12.5
NIR-900-2500	900-2500nm	8.8	10.6	12.5	15.6	25.0