XWS product overview

January 2020

ISTEQ B.V.: Overview

- Spinoff from **EUVLabs / RnD-ISAN**:

EUVLabs and RnD-ISAN are well-known research companies located in Moscow, which focuse on EUV and plasma light research activities

- Company group ISTEQ/EUVLabs/RnD-ISAN: 70+ R&D specialists and engineers

- Employees of ISTEQ/EUVLabs/RnD-ISAN: co-authors of 60+ EUV and plasma related patents

ISTEQ B.V. is located in the High Tech Campus, Eindhoven, The Netherlands

Distribution partners

Active sales: hundreds of sources sold worldwide for major companies for variety of applications.
Pro-active customer support: reaction within 2 hours, solution within 24 hours.

Germany:
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E-Mail: m.rotschaedl@mphotonics.de
Website: www.mountainphotonics.de

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E-mail: fbeck@optoprim.com
Website: www.optoprim.com

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Broadband light sources XWS

Broadband light source XWS-65

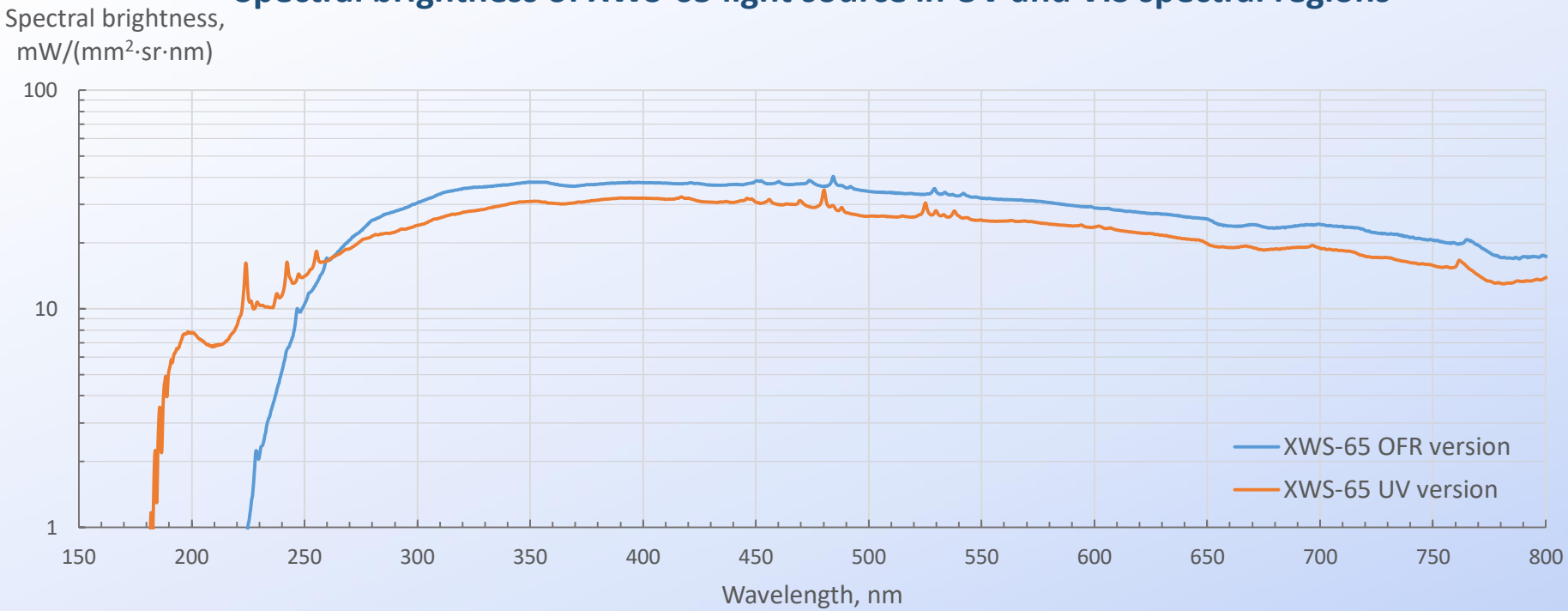
XWS-65 - laser pumped plasma broadband light source (UV-NIR)

- The main principle of the XWS light source is based on a well-known phenomenon of optical discharge
- The technique used provides a broad range, high brightness and significantly longer lifetime overall
- These light sources have been developed as a replacement for traditional gas discharge lamps (Deuterium-, Tungsten-, Xenon- lamps etc.) and LEDs

List of our patents: US9368337B2, US9357627B2, EP2933823B1, EP2985781A1

XWS-65 spectral range and brightness

Spectral brightness of XWS-65 light source in UV and VIS spectral regions

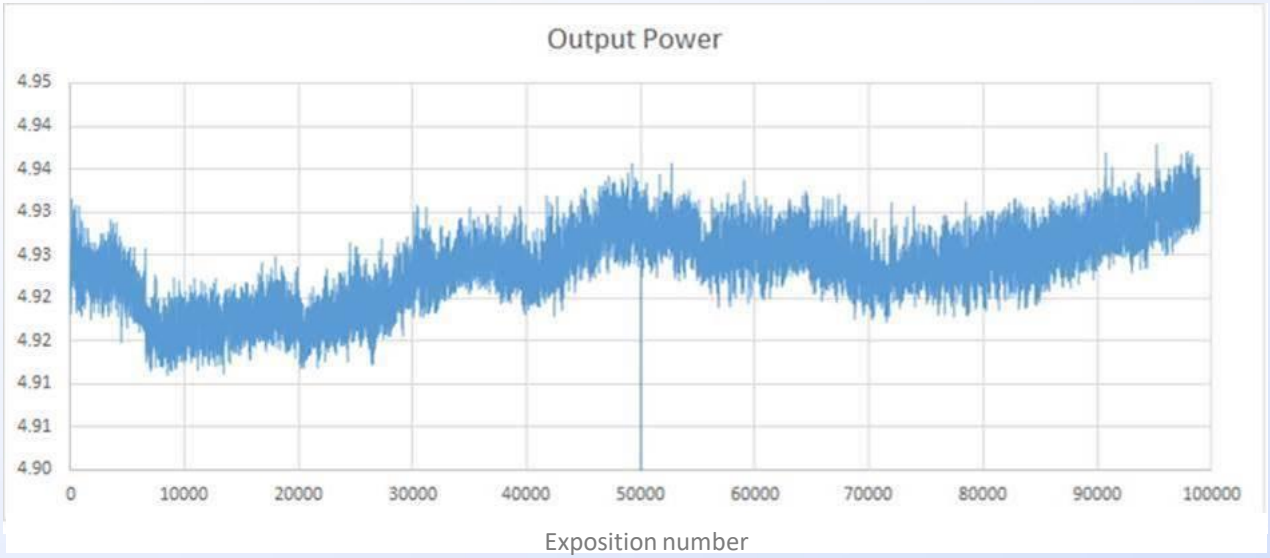


Source parameters:

- Spectral range: **190-2500nm**
- Spectral brightness: up to **45mW/(mm²·sr·nm)**
- Emitting body dimension: **250x500um**
- Temporal and spatial stability: **STD 0.15%**
- Lifetime: **up to 10,000 hours**
- Output configuration: Free space or FCU

XWS: Long and short term stability

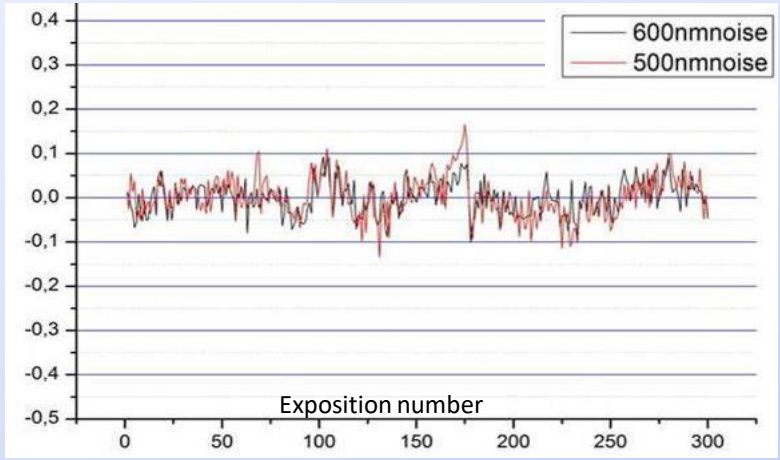
Long term power stability:



- Every data point - 100 averaged points with exposure time of 200us
- Data acquisition frequency 2Hz
- 1,000,000 points = 14hours nonstop regime
- Y axis – output power, a.u.

Mean	4.923
STD	0.004
STD,%	0.089

Short term power stability:



- Every exposition – 100ms
- Total measurement time – 30sec

XWS-65: Source output configurations

Free space output configuration: divergent light beam (NA = 0.4) coming from an output window, made of a solarisation resistant material. The configuration is available for both – UV and Ozone Free (OFR) versions:

Fiber coupled (FCU) configuration: the light can be coupled to an optical fiber via SMA, FC or other type of connector (upon request). Different fiber core diameters can be used – from 10um up to 1000um, depending on customers' requirements. Two different configurations are available for OFR or UV source versions:

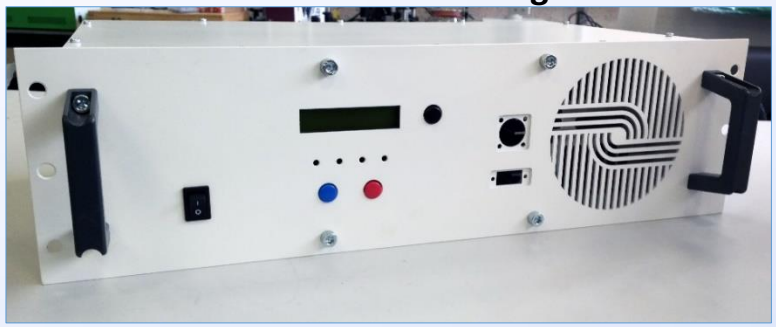
OFR FCU

UV FCU

XWS-65: customization

Upon request we can modify our system to simplify integration of the light source into a customer's machine. For example – different versions of the light source PSU (power supply units) were developed to fulfil a customer's requirements.

19 inch PSU rack design:

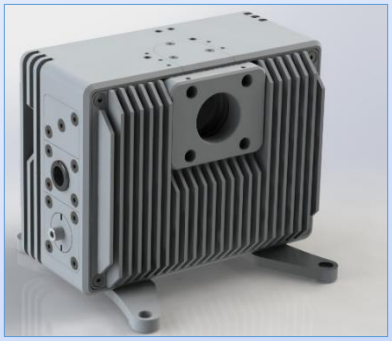


- Standard shape and size, easy to integrate
- Water or air cooling possible

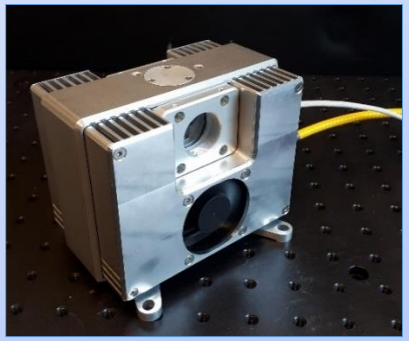
Water cooled PSU design:

- Water cooling system
- High efficiency
- Low power consumption

Light source head and/or light output parameters can be also modified upon customer request.



XWS-R High power source



XWS Dual port source

XWS-30: compact light source

XWS-30 - laser pumped broadband plasma light source (UV-NIR)

Unique concept of a compact
“all-in-one” source.

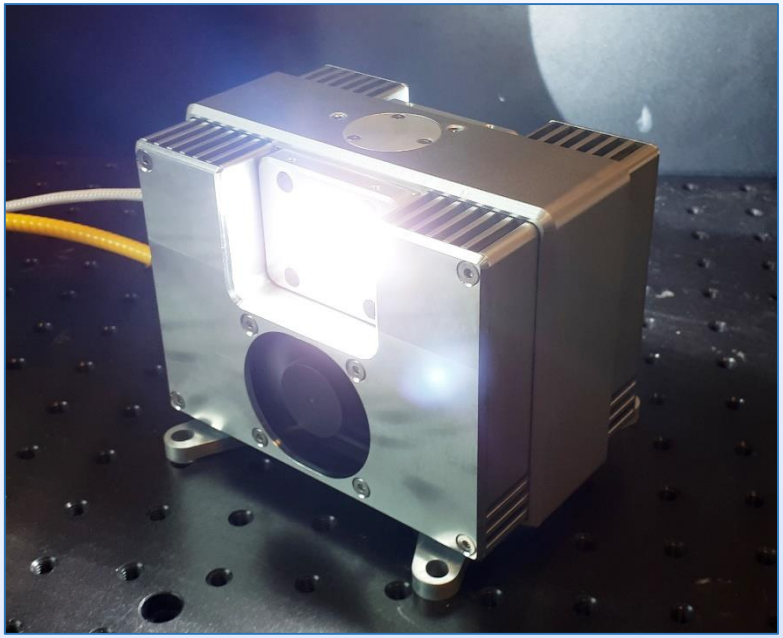
Special feature:

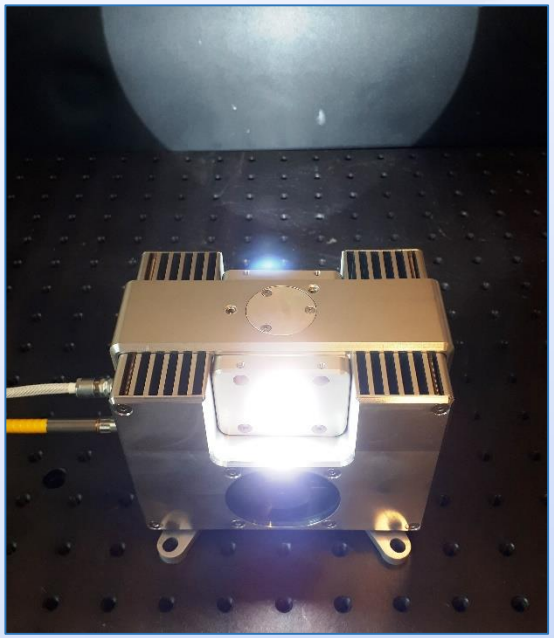
- Very compact. System dimensions: **110x110x120mm**
- **“All-in-one”** packaging, **no external power supply**
- Control by Laptop/PC via RS-485

Source parameters:

- Spectral range: **190-2500nm**
- Spectral brightness: up to **40mW/(mm²·sr·nm)**
- Emitting body dimension: **100x250um**
- Temporal and spatial stability: **STD 0.1%**
- Lifetime: **up to 10,000 hours**
- Output configuration: **Free space or FCU**

XWS-D: Dual output power source





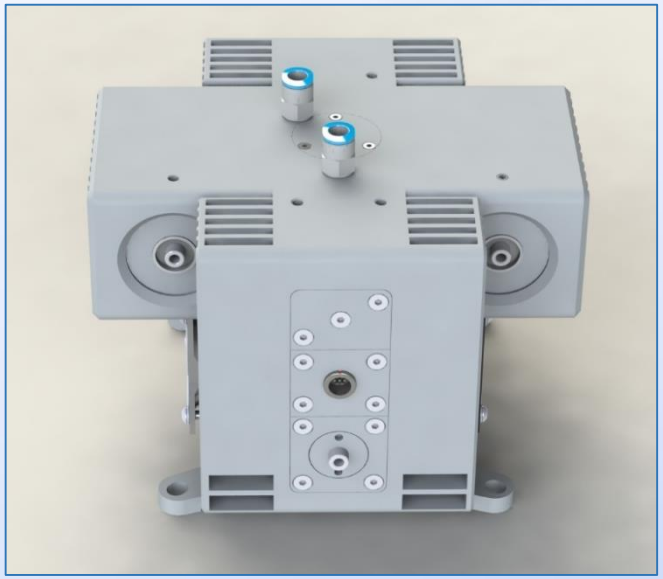
Special feature:

- Dual beam light source with identical parameters for each port

Source parameters:

- Spectral range: **190-2500nm (UV versions)/250-2500nm (OFR version)**
- Spectral brightness: up to **45mW/(mm^2·sr·nm)**
- Temporal and spatial stability: **STD 0.15%**
- Lifetime: **up to 10,000 hours**

XWS Dual port FCU



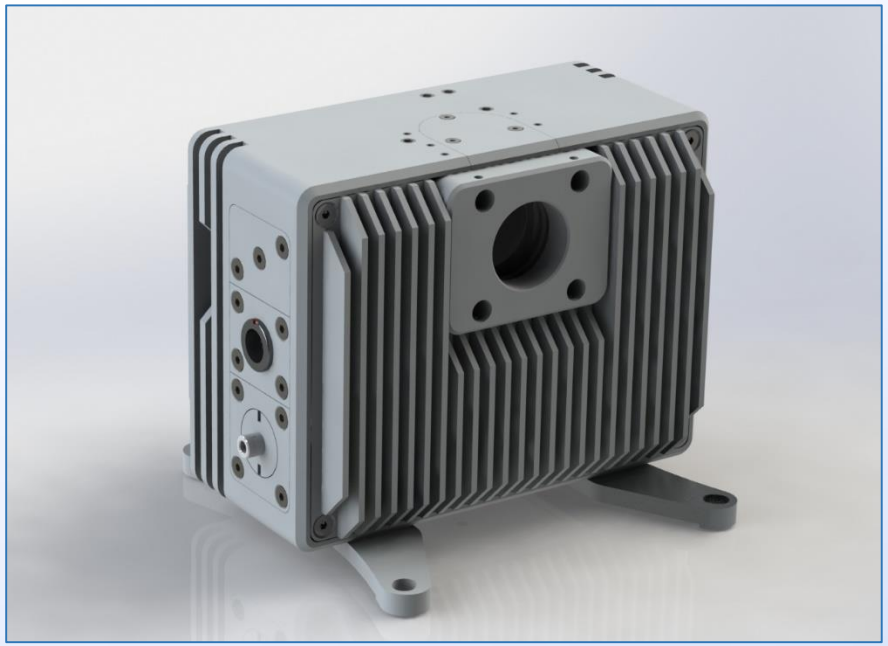
Special feature:

- Two output fiber outputs with identical parameters

Source parameters:

- SMA or FC fiber output
- Spectral range: **190-2500nm (UV versions)/250-2500nm (OFR version)**
- Output power: up to **500mW for each fiber**
- Temporal and spatial stability: **STD 0.15%**
- Lifetime: **up to 10,000 hours**

XWS-R: high power light source



Special feature:

- High power version: up to 80% increased output power/brightness in comparison to default XWS-65 version

Source parameters:

- Spectral range: **190-2500nm (UV versions)/250-2500nm (OFR version)**
- Spectral brightness: up to **85mW/(mm²·sr·nm)**
- Output power: **up to 1W after the fiber**
- Temporal and spatial stability: **STD 0.15%**
- Lifetime: **up to 10,000 hours**
- Output configuration**: Free space or FCU**

XWS: specifications

	XWS-65	XWS-R	XWS-Dual	XWS-30
Spectral range for UV/OFR:	190 - 2500nm / 250 - 2500nm			
Maximum spectral brightness	45mW/(mm²·nm·sr)	85mW/(mm²·nm·sr)	45mW/(mm²·nm·sr) per port	40mW/(mm²·nm·sr)
Output power	Up to 3W free space Up to 0.5W via fiber	Up to 5W free space Up to 1W via fiber	Up to 3W free space Up to 0.5W via fiber	Up to 3W free space Up to 0.5W via fiber
Emitting body size	250×500um	300x750um	250×500um	100×250um
Lifetime	10,000 hours			
Temporal and spatial stability	STD < 0.15%			
Optical design				
Output NA (by default)	0.4			
External optic interface	C-mount			
Pumping laser wavelength	NIR			
Power input	Via fiber			
Optional configurations				
Source spectrum	UV or Ozone free			
Light output	Free space or fiber coupled			
Optical head cooling system	Air or water cooling			Air cooling
Power Supply Unit cooling system	Air or water cooling	Air or water cooling	Air or water cooling	NA (No power supply)
Additional features				
External control	COM-port (RS-232)			COM-port (RS-485)
Interlock / Distant plasma control	Db-15 connector			Lemo FGG
Dimensions				
Optical head dimensions	130x75x106mm	130x130x106mm	130x110x106mm	138x110x148mm
Power supply dimensions	351x175x232mm	351x175x232mm	351x175x232mm	NA (No power supply)

XWS-M150/266: Tunable light source

XWS-M light sources are flexible tools based on the laser driven white light source XWS-65 coupled with a monochromator. This system allows the selection of a narrow line across a broad spectrum. This provides high energy while maintaining all the advantages of the XWS-65 such as high brightness, high output power, excellent stability and long lifetime.

Overview:

- Laser driven plasma light source XWS-65 for high output brightness
- Automatic monochromator with astigmatism compensation for maximum throughput
- Modular design, high uptime and reliable operation in a 24/7 production environment
- Output power up to a few milliwatts in a line of 6nm width
- High output power in UV region (190-250nm)
- Spectral resolution down to 0.5nm
- State-of-the-art control system and simple synchronisation with OEM equipment
- Long lifetime up to 10,000 hours

XWS-M150/266: specifications

	M150 version	M266 version
Light source	XWS-65 (R) plasma light source directly coupled	
Optical output	Free space, SMA fiber output or collimated light beam	
Tunable range	190 - 2500nm *	
F/number	1:3.6	1:3.8
Maximum output power	Up to a few miliwatts in a line of 6nm width (free space) *	
Spectral power density	Up to 60µW/(nm·mm^2) *	
Optical power stability	STD < 0.15%	
Bandwidth (FWHM)	1 – 180nm *	0.5 – 90nm *
Wavelength repeatability	0.02 – 0.3nm *	0.01 – 0.15nm *
Wavelength scanning range	30-300nm/sec *	16-150nm/sec *
Plasma size on the monochromator entrance slit	500um	
Set of filters for diffraction order suppression	- Automatic wheel, with 5 filters for the range of 190–1620nm - Silicon filter for NIR range of 1000 – 2000nm (optional)	
System cooling	Air by default or water optional	
Control interface	USB	
Facility requirements	100-240 VAC, 50/60Hz	
Dimensions and weight	458 x 292 x 220mm, 13kg	530 x 490 x 250mm, 27kg

*: Depends on the grating

Contact us

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