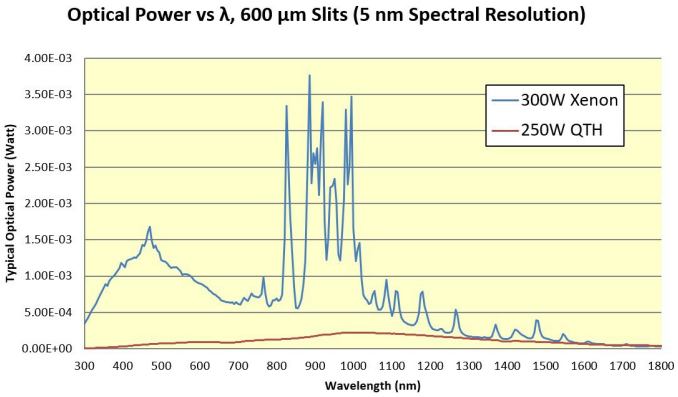
Tunable Light Sources

TLS260B Series

mks | Newport

The TLS260B Tunable Light Source family of products is tailor-made for users who want the flexibility of a modular design and the simplicity of an integrated system. All models are assembled, aligned, and fully characterized prior to shipment. The wide tuning range makes the TLS useful for a variety of applications. Utilizing our CS260B series monochromators, these light sources offer increased power and dual output options, truly a next level solution for your laboratory needs.

Wide Tuning Range



Photodetectors with NIST traceable calibrations (sold seperately) are used to measure the output power from each unit manufactured. The results are part of the characterization report packaged with each system, with wavelength data from 300 to 1800 nm. These are ideal for researchers or other end users who need a versatile light source that is ready to use out of the box.

Product Features

- Integrated with CS260B monochromator for faster scan speeds, increased power, and improved communications
- System comes pre-assembled to base plate with the optics pre-aligned
- Plug and play with TracQ Basic Control and Data Acquisition software included
- 300 W Xe arc lamp or 250 W QTH lamp models available
- Single or Dual output port options
- Interchangeable fixed slits for improved repeatability and accuracy
- 1 inch output flange for compatibility with a wide variety of Newport products

Pre-Assembled and Pre-Aligned

The TLS260B system comes mounted as a single unit to a mounting plate. Optics are pre-aligned. All necessary interconnection cables are included and all of the hardware is mounted securely to the TLS baseplate.

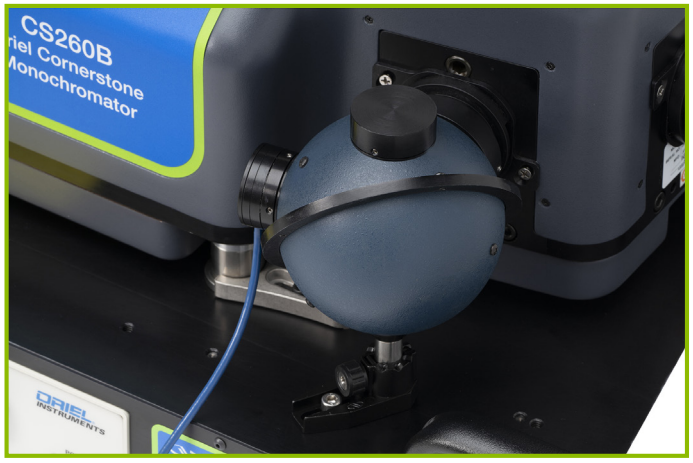
Lamps

The TLS260B-300X models include a 300 W (model 6258), Xenon arc lamp. This Xenon lamp included does not produce toxic ozone. Xenon arc lamps have higher monochromator throughput and a smaller divergence angle due to their small arc size. For these reasons, arc lamps are ideal sources for applications that require high light output power and fiber coupling, with an extended average operating lifetime of 900 hours.

The TLS260B-250Q models include a 250 W (model 6334NS), Quartz Tungsten Halogen (QTH) lamp. QTH lamps are ideal light sources for spectral sensitivity measurements due to their smooth output curve in the visible to near infrared wavelength ranges. By comparison to Xenon arc lamps, QTH lamps are low cost and simple to replace, at the exchange of a lower average operating lifetime of 50 hours. QTH lamps provide extremely stable light output intensity compared to Xenon lamps, making them ideal sources for low noise spectroscopy measurements.

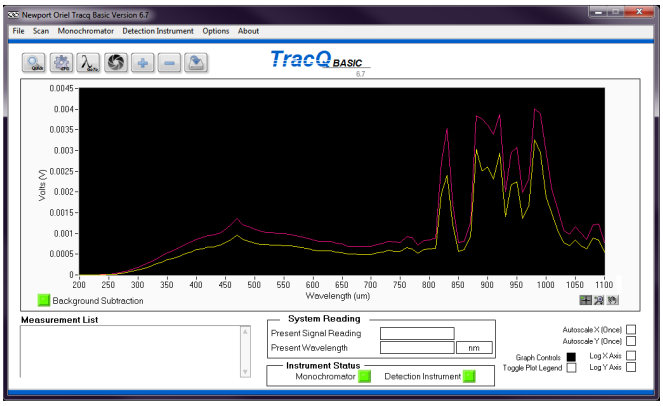
Dual Output Port Option

To further increase the light source's flexibility, a dual output port option is available for a separate, persistent experimental set up. This option saves valuable time and reduces uncertainties during repeat measurements.



Example of separate experiment mounted on secondary port of a dual output model, additional optics sold separately

Includes TracQ Basic Software



The TLS260B Series includes TracQ BASIC Version 6.9: the newest, most advanced version of Oriel's TracQ Instrument Control and Data Acquisition software. Using the Cornerstone 260B Monochromator's USB or RS232 port, TracQ switches the filter wheel position to the correct order sorting filter and the monochromator to the proper grating and position based on the TLS260B wavelength output chosen by the operator. When used with a compatible Newport Power Meter and Detector, TracQ is a complete radiometry system control software, capable of displaying real time data acquisition. No prior knowledge of software programming is necessary to install or operate TracQ. Some of the scans made possible with the TLS260B by TracQ include:

- Time Interval
- Absorbance
- Lamp Radiometry
- Transmittance
- Optical Power

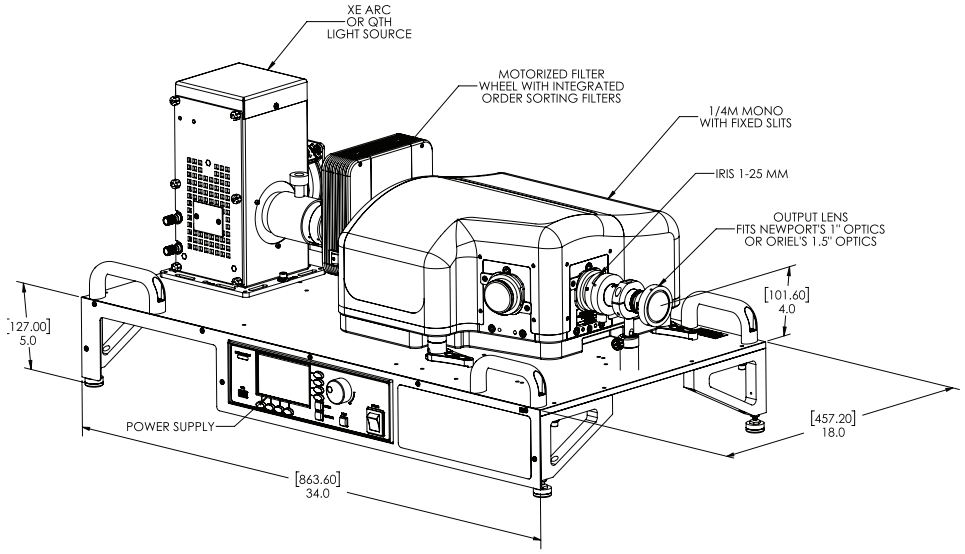
TracQ Basic is compatible with Windows (32-bit or 64-bit) operating systems.

Each Unit Tested to Meet Oriel Standards

Each TLS260B unit sold to a customer is tested prior to shipping to confirm that the unit meets factory standards. The customer receives this test report with the TLS260B unit for future reference. The final test data included with each unit includes:

- Optical Power from 300 to 1800 nm for Xe source or 300 to 1650 nm for QTH source
- Beam Spot Size and Beam Divergence Angle
- Light Output Stability
- Beam Uniformity
- Wavelength Accuracy

Dimensional Drawing



PRODUCT SPECIFICATIONS[1]	TLS260B-300X		TLS260B-250Q
Lamp Type	300 W Xenon Arc Lamp		250 W DC Quartz Tungsten Halogen
Average Lamp Lifetime (hours)	900 hrs		50 hrs
Tunable Range (nm)	250-1800		350-1800
Certified Range (nm)	300-1650		350-1650
Computer Interface	USB 2.0 and RS232		
Beam Uniformity[2]		±15%	
Output Beam Divergence[3] (º)	7.5° typical		7.5° typical
Beam Diameter[4] (in.) [mm]		0.625" [15.9 mm] minimum @ white light output	
Light Ripple	<1%		<0.5%
Wavelength Repeatability[5] (nm)		±0.2	
Wavelength Accuracy (nm)		< 5	
Spectral Resolution[6] (nm)		5	
Grating		600 lines/mm ruled diffraction grating. Quantity 2 installed	
Integrated Filter Wheel		Automated, 6 position motorized	
Filter Wheel Speed		< 2 seconds per position	
Order Sorting Filters		Quantity 4 installed	
Slits Included		600 µm (W) x 18 mm (H), Quantity 2 1240 µm (W) x 18 mm (H), Quantity 2	
Beam Coupling		1" Lens Tube and 1.5" Oriel Female Flange	
Optical Height[7] (in.) [mm]		4.0" [101.6 mm]	
Output Iris		Manual, 0.04 - 1.0 in. [1 – 25 mm] diameter	
Shutter Controller		Included	
Power Supply Operation Mode		Constant Current or Power	
AC Voltage Input		100 to 240 VAC, 47 to 63 Hz	
Operating Temperature (ºC)		15 - 30	
Operating Humidity		<45% relative humidity, non-condensing. Indoor use only	
Storage Temperature (ºC)		0 - 50	
Dimensions (in.) [mm]		18.0 x 34.0 x 16.1 [457.2 x 863.6 x 408.9]	
Weight (lbs.) [kg]		78.3 [35.5]	
Software Compatibility		TracQ, MonoUtility[8]	

1. All specifications apply to the primary integrated optics output port only, not applicable to the secondary output port on dual output port models.
2. Beam uniformity measured with beam profiler at 550nm.
3. Beam divergence measured in full angle at horizontal angle.
4. Beam diameter measured at 4" from exit aperture.
5. Ability of a wavelength to be consistently reproduced.
6. Spectral resolution based on 600µm slit installed.
7. Height measured from TLS system baseplate.
8. MonoUtility used as a system check for the monochromator, not utilized for full system control.

Software Function and Requirements

Set General Scan Parameters	Starting and ending wavelength, interval, wait between intervals prescan wait
Set Types	Signal vs wavelength, optical power, external quantum efficiency (AC and DC), transmittance, absorbance, irradiance, time interval background subtraction
Set Monochromator Parameters	Auto grating and filter change, open/close shutter
Wavelength Calibration	Adjustment of grating calibration factor and offset parameters
Communication Settings	USB 2.0 and RS232 comm port
Operating System	Microsoft Windows (32-bit or 64 bit)
Processor	2 GHz
RAM	1 GB
Hard Drive	800 MB free space

Accessories

Replacement Parts

6258	300 Watt Xenon Arc lamp (Ozone Free)
66160	Lamp Socket Adapter, 300 W Xenon Lamp
6334NS	250 Watt Quartz Tungsten Halogen Lamp
60043	Socket Adapter, 50 to 250W QTH Lamps, For Q Series and Research Seres Lamp Housing
70044	Cable, USB 2.0, Type A to Type B, 9.8 ft. (3 Meter) Length
70040	Cable, RS-232 Serial, 6 ft. (1.8 m) Length
70050	Cable for Oriel Power Supplies, Compatible with Xe, Hg (Xe), QTH, Deuterium (lamps and IR Emitters, 6 Feet (1.8 meters) Long
77216	Fixed slit, 600 µm width, 18 mm Height
77214	Fixed slit, 1240 µm width, 18 mm Height
LT10-UADPT	Adapter, Oriel 1.5-Inch Series Flange to Newport 1-inch LT Series

Slits

The TLS260B source includes 600 and 1240 µm slits. The slits shown below are compatible with the TLS260B and can be used to adjust resolution or throughput power.

77222	Fixed Slit, 10 µm Width, 2 mm Height
77220	Fixed Slit, 25 µm Width, 3 mm Height
77219	Fixed Slit, 50 µm Width, 6 mm Height
77218	Fixed Slit, 120 µm Width, 18 mm Height
77217	Fixed Slit, 280 µm Width, 18 mm Height
77215	Fixed Slit, 760 µm width, 18 mm Height
77213	Fixed Slit, 1.56 mm Width, 18 mm Height
77212	Fixed Slit, 3.16 mm Width, 18 mm Height
77211	Fixed Slit, 6.32 mm Width, 18 mm Height

Communications

70040	Cable, RS-232 Serial Communication, 6 Foot (1.8 Meter) Length
70044	Cable, USB 2.0, Type A to Type B, 9.8 Foot (3 Meter) Length

Lens/Focusing Optics

The parts in the table below can be used to mount additional optical components such as Lenses and Filters.

7123	Flange Mounted Cell, 1.0 in. Diameter Optics, 1.5 Inch Flange
71306	Quick Connect Flange Mounted Cell, 1.0 in. Optics, 1.5 Inch Flange
6195	Flanged Lens Holder, 1.5 in. Diameter, 1.5 Inch Series Flange
77330	Focusing Lens Assembly, Req. 1 inch Dia Lens, 1.5 inch Series Flanges

Male/Female Flange Couplers

77790	Quick Connect Flange Converter, 1.5 Inch Series, Double Female
77791	Quick Connect Coupling Ring, 1.5 Inch Series, Double Female
77792	Quick Connect Coupling Ring, 1.5 Inch Series, Double Male

Fiber Optics

The 77776 in the table below transmits the broad wavelength range of the TLS260B and optically focuses this light output onto one of the Oriel Light Guides or Fiber Bundles.

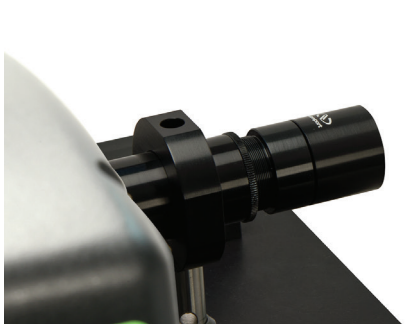
Fiber Bundle Focusing Assembly

77776	Fiber Bundle Focusing Assembly, FS Aspheric, F/2.2, 800 mm Spot
77563	Fused Silica Fiber Optic Bundle, 11mm Ferrules, 0.125 in. Dia, 24 in
77564	Fused Silica Fiber Optic Bundle, 11mm Ferrules, 0.125 in. Dia, 36 in.

Ferrule Converters

77670	Ferrule Converter, SMA Termination to 11mm Standard Ferrule
77675	Ferrule Converter, ST Termination to 11mm Standard Ferrule

Lens Tubes



By removing the LT10-UADPT at the output of the TLS, the system becomes compatible with Newport's line of 1 inch Lens Tube products.

LT10-05	Lens Tube, 1 inch LT Series, 1/2 inch length
LT10-10	Lens Tube, 1 inch LT Series, 1 inch length
LT10-20	Lens Tube, 1 inch LT Series, 2 inch length
LT10-30	Lens Tube, 1 inch LT Series, 3 inch length
LT10-C	Lens Tube End Cover, 1 inch LT Series
LT10-EX	Extension Lens Tube, 1 inch LT Series, 6 inch length
LT10-F	Focusing Lens Tube, 1 inch diameter lenses

Four versions of the TLS260B are available for ordering:

Part Number	Description
TLS260B-300X-D	Tunable Light Source, CS260B, 300W Xe, Dual Output
TLS260B-300X-S	Tunable Light Source, CS260B, 300W Xe, Single Output
TLS260B-250Q-D	Tunable Light Source, CS260B, 250W QTH, Dual Output
TLS260B-250Q-S	Tunable Light Source, CS260B, 250W QTH, Single Output

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DS-062404 TLS260B Tunable Light Sources Datasheet