TLS260 SERIES

Tunable Light Sources

The TLS260 family of Tunable Light Sources (TLS) provides an upgrade from the standard Xenon (Xe) and Quartz Tungsten Halogen (QTH) TLS for users seeking additional light intensity and simplified data acquisition capability. These light sources arrive fully assembled, optically pre-aligned, and with an individual characterization report. The broad tuning range and standalone scanning and data acquisition capabilities make these light sources ideal for a wide variety of spectroscopy applications with strict requirements.

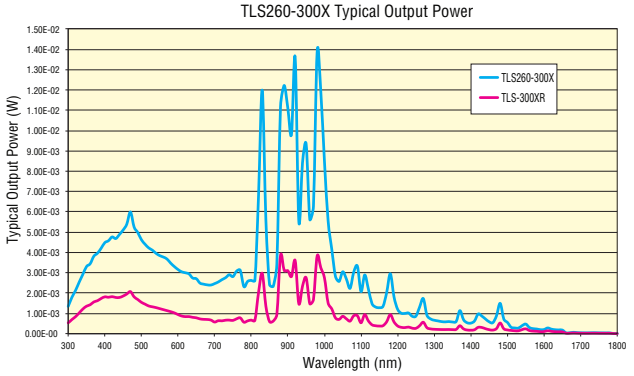
- Tunable light source with high intensity light output from ultraviolet to near-infrared
- Integrated instrument control, built in detector readout and utility software
- Rotating output flange provides flexible output beam orientation
- Flexible resolution adjustment via micrometer driven variable slit
- Arrives as a pre-assembled system with pre-aligned optics

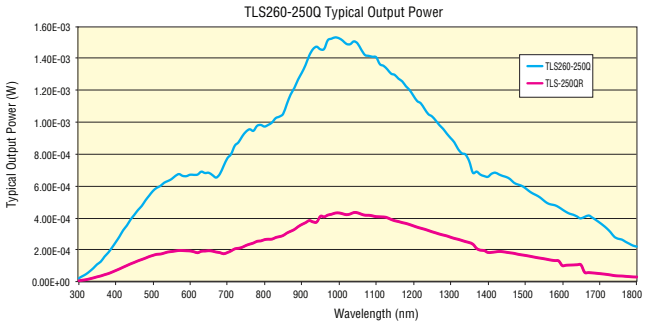
Features

HIGHEST OUTPUT INTENSITY AMONG TLS PRODUCT FAMILY

The TLS260 series outputs a much greater light output intensity than its predecessors. Two versions of the TLS260 are available:

Part Number	Description
TLS260-300X	High intensity Tunable Light Source, 300 to 1800 nm Output, 300 W Ozone Free Xe Lamp, USB Control, Integrated Control & Detector Readout Software
TLS260-250Q	High intensity Tunable Light Source, 350 to 1800 nm Output, 250 W QTH Lamp, USB Control, Integrated Control & Detector Readout Software





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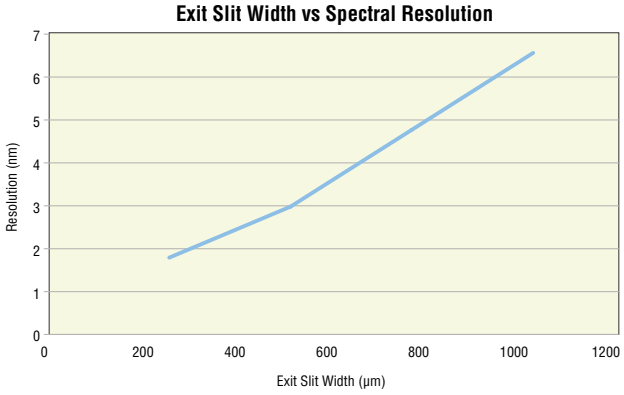
- The TLS260-300X includes a 300 W (6258), Xenon arc lamp. This Xenon lamp included does not produce toxic ozone. Xenon arc lamps have higher monochromator throughput and a smaller divergence angle due to their small arc size. For these reasons, arc lamps are ideal sources for applications that require high light output power and fiber coupling.

- The TLS260-250Q includes a 250 W (6335), 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, with minimum UV emission. The QTH lamp included is a specialized lamp, with an extended operating lifetime of 300 hours. QTH lamps provide extremely stable light output intensity compared to Xenon lamps, making them ideal sources for low noise spectroscopy measurements.

TUNABLE BROADBAND OUTPUT WITH 5 NM, 10 NM, 20 NM, AND 30 NM RESOLUTION SELECTION

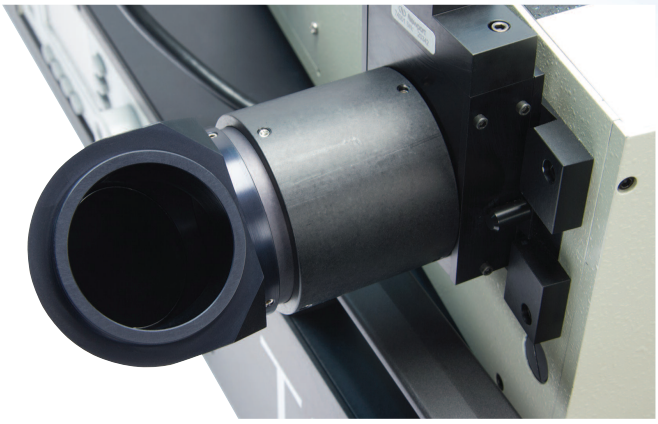


The TLS260 series includes a Cornerstone 260 monochromator in its setup. This monochromator is based upon an asymmetrical in-plane version of a Czerny-Turner monochromator. The optical configuration is designed to ensure high resolution and maximum throughput, while rejecting stray light and minimizing aberrations. A fixed slit assembly is at the input port and a micrometer driven slit is at the output port of the monochromator. This allows for flexibility and convenience in adjusting the slit widths of the monochromator to meet the resolution and light throughput needs of any application.

A simple input command from the user coordinates the operation of the integrated filter wheel and monochromator to output broadband white light, or monochromatic light from the TLS260.

600 µm (18 mm height) and 1240 µm (18 mm height) wide fixed slits are included with the TLS260.

ROTATING OUTPUT FLANGE



The 1.5 inch output flange of the TLS260 is an optical assembly incorporating a protected aluminum coated mirror. This mirror's off-axis replicated parabolic design features the focal point displaced from the mechanical axis, eliminating the typical shadow effect observed when a detector or light source is placed at its focal point. The output flange has 360° freedom of rotation, providing flexibility and convenience in installing the TLS260 into existing measurement systems.

EACH UNIT TESTED TO MEET ORIEL STANDARDS

Each TLS 260 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 his/her TLS unit for future reference. The final test data included with each unit includes:

- Optical power from 300 to 1650 nm for Xe source or 350 to 1650 nm for QTH source
- Beam diameter and divergence angle
- Light output stability
- Wavelength accuracy and resolution

BUILT-IN DETECTOR READOUT CAPABILITY

The integrated OPS power supply operates the Xe arc lamp or QTH lamp of the TLS with high light output intensity stability. An ability exclusive to the TLS260 series, the OPS power supply is also capable of reading the output current of any unamplified Oriel detector. Unlike TRACQ-BASIC-V066, the OPS power supply simplifies setup by not requiring an external meter to display real-time Oriel detector current readings.

INTEGRATED TLS UTILITY DATA ACQUISITION AND CONTROL SOFTWARE

The OPS power supply integrated into the TLS260 includes TLS Utility, an instrument control and data acquisition software that enables the simultaenous monochromator operation and detector readout necessary for the following spectroscopy scans:

Transmittance/Absorption, Time Interval, Spectral Responsivity, Optical Power Measurement, Wavelength Scan

TLS Utility is compatible with 32-bit and 64-bit versions of Windows XP, 7, 8, and 10. The power supply enables standalone PC control via USB 2.0 connection. Driver installation for all integrated components is simplified as TLS Utility automatically detects the Cornerstone 260 monochromator and drives all associated components.

VARIOUS COUPLING ACCESSORIES OFFERED FOR DIVERSE APPLICATION SUITABILITY

LENS/FOCUSING OPTICS

The parts in the table below can be used to mount additional optical components such as lenses and filters to produce a small, uniform spot size illumination with free space optics.

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

INTEGRATING SPHERE

For photonic sensor characterization, a uniformly illuminated, flat field of light projected onto the active area of the sensor is vital for achieving accurate measurements. Newport's line of integrating spheres optimizes the output light of the TLS for sensor characterization applications. The SPH-UAPT is necessary for coupling the TLS output to an integrating sphere with 1.0 inch diameter port. See our website for coupling adapters suitable for other diameter ports.

	Integrating Sphere Coupling Flange
SPH-UADPT	Male Oriel 1.5 inch Flange Adaptor for 819C/D integrating sphere 1 inch port
	Integrating Sphere
819C-SL-2	4-Port Integrating Sphere, 2 in., PTFE, Inc. a 1 inch Port Plug
819D-SL-2	3-Port Integrating Sphere, 2 in., PTFE
819C-SL-3.3	4-Port Integrating Sphere, 3.3 in., PTFE, Inc a 1.5 inch Port Plug
819D-SL-3.3	3-Port Integrating Sphere, 3.3 in, PTFE, Inc 1 in Port Frame Reducer
819C-SL-5.3	4-Port Integrating Sphere, 5.3 in. PTFE, Inc. a 2.5 inch Port Plug
819D-SL-5.3	3-Port Integrating Sphere, 5.3 in, PTFE, Inc 1 in Port Frame Reducer

FIBER OPTICS

For applications in which a small, uniform spot size illumination area is desired, the 77776 fiber bundle focusing assembly is recommended for optically focusing the broad wavelength range onto a fiber bundle. A fused silica fiber optic bundle is recommended for its broad wavelength transmission range matching that of the TLS wavelength output. Ferrule converters are also available for converting standard SMA or ST terminated fibers to Oriel's 11 mm fiber ferrule system.

	Fiber Bundle Focusing Assembly
77776	Fiber Bundle Focusing Assembly, FS Aspheric, F/2.2, 800 µm 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

Specifications

	TLS260-300X	TLS260-250Q
Lamp Type	300 W Ozone Free Xenon	250 W DC Quartz Tungsten Halogen
Replacement Lamp	6258	6335
Computer Interface	USB	
Tunable Range	300-1800 nm	350-1800 nm
Beam Uniformity[1]	±15%	
Output Beam Divergence	Horizontal 0.5° max. (slit width axis) Vertical 7.5° max. (slit height axis)	
Light Ripple	< 1%	< 0.05%
Wavelength Repeatability[2]	± 0.2 nm	
Wavelength Accuracy[3]	< 1 nm	
Spectral Resolution[4]	5 - 30 nm	
Integrated Filter Wheel	Motorized filter wheel	
Filter Wheel Speed	< 1 second per position	
Slit	Quantity 1, 600 µm (W) x 18mm (H) fixed slit Quantity 1, 1240 µm (W) x 18mm (H) fixed slit Quantity 1 micrometer driven exit slit	
Beam Coupling	2" Newport Lens Tube and 1.5" Oriel Female Flange	
Optical Height[5] (in. [mm])	4.6 [116.8]	
Detector Signal Input	1-2450 µA, 1 µA resolution	
Tuning Speed	102 nm/s	
Collimated Beam Size @ 3.5" from Exit Flange	0.625" minimum @ white light output	
AC Input	Monochromator and OPS Power Supply: 100 to 240 VAC; 47 to 63 Hz 95-264 VAC; 47-63 Hz (OPS-A500), 90-264 VAC; 47-63 Hz (OPS-Q250)	
Operating Environment	5°C to 40°C; <80% relative humidity non-condensing; <3000m Altitude; Indoor Use only; Installation Category II; Pollution degree 2	
Storage Temperature	0°C - 50°C; relative humidity not to exceed 30%	
Dimensions (in. [mm])	22.5 x 30.0 x 15.6 [571.5 x 762 x 396.2]	
Weight (lbs [kg])	74 [33.6]	
CE Certification	Safety: EN61010-1:20130 EMC: EN61326-1:2013	
RoHS	All components RoHs compliant	

[1]Beam uniformity measured with beam profiler at 550nm wavelength.
[2]Ability of a wavelength to be consistently reproduced.
[3]Capability of the monochromator to output the desired wavelength.
[4]Dependent on slit width
[5]Height measured from baseplate.

SOFTWARE FUNCTION AND REQUIREMENTS

Set General Scan Parameters	Starting and ending wavelength, interval, wait between intervals, pre-scan wait, Slow & Full scan
Scan Types	Short, Full, & Interval Wavelength vs. External Signal (Optical Power, Quantum Efficiency, Transmittance, Absorbance, Irradiance, Interval & Background)
Set Monochromator Parameters	Auto grating and filter change, open/close shutter
Wavelength Calibration	Adjustment of grating calibration factor and offset parameters
Communication Settings	USB
Operating System	Microsoft Windows 7, 8, 10 (32-bit or 64bit)

Accessories

REPLACEMENT PARTS

77214	Fixed Slit, 1240 µm Width, 18 mm Height
77216	Fixed Slit, 600 µm Width, 18 mm Height
6335	250 Watt Quartz Tungsten Halogen Lamp
60043	Socket Adapter, 50 to 250W QTH Lamps, For Q Series and Research Series Lamp Housings
6258	300 Watt Xenon Arc Lamp, Ozone Free
66160	Lamp Socket Adapter, 300 W Xenon Lamp
70040	Cable, RS-232 Serial Communication, 6 Foot (1.8 Meter) Length
70050	Cable for Oriel Power Supplies, Compatible with Xe, Hg (Xe), QTH, Deuterium Lamps and IR Emitters, 6 Feet (1.8 meters) Long

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