

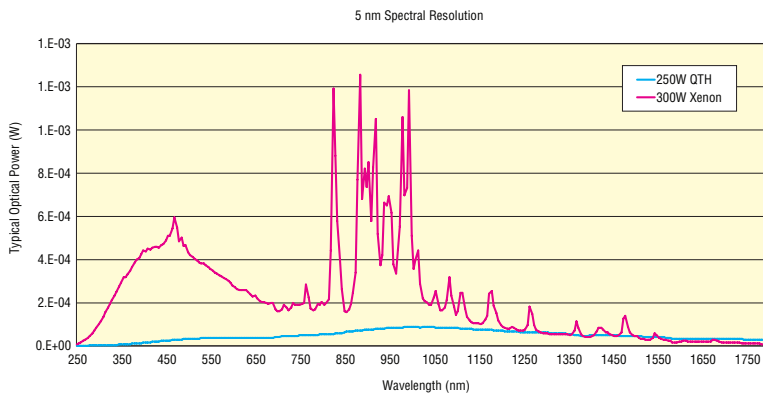
TLS SERIES

Tunable QTH Light Sources



The Tunable Light Source (TLS) family of products from Oriel® Instruments 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. Finally, a pre-aligned and pre-assembled, versatile light source that requires no set-up!

WIDE TUNING RANGE



The TLS is capable of outputting white light or monochromatic light from 350-1800 nm with resolution as great as 0.7 nm (slit size dependent). Photodetectors with NIST traceable calibration are used to measure the output power from 350-1650 nm from each unit manufactured. The results are part of the characterization report packaged with each system. These are ideal for researchers or other end users who need a versatile light source that is ready to use out of the box.

- Tunable 350-1800 nm light output with up to 0.7 nm resolution
- System comes pre-assembled to base plate with the optics pre-aligned
- Plug and play with TracQ Basic Control and Data Acquisition software included
- Includes OPS power supply with light intensity control feature
- 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



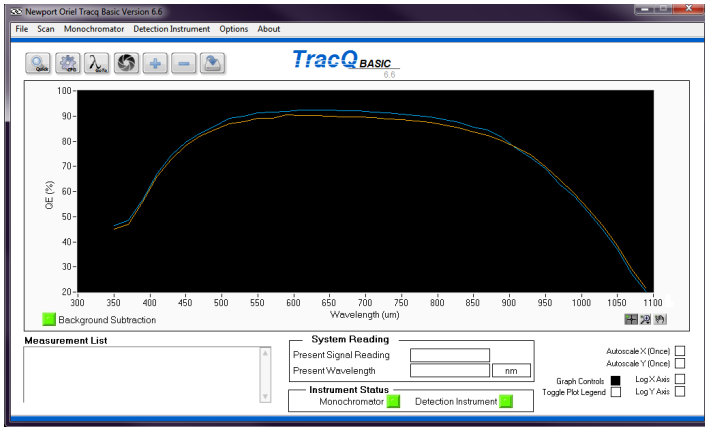
The TLS system comes mounted as a single unit to a mounting plate. Optics are pre-aligned. All necessary interconnection cables are included and all of the hardware is mounted securely to the TLS baseplate.

TLS SERIES

SIMPLE LAMP INSTALLATION AND ALIGNMENT

When the 6334NS QTH lamp inside the TLS system has reached its end of lifetime and needs replacement, changing the lamp is as simple as removing the old lamp and inserting a new one. Due to small manufacturing differences between lamps, a minor alignment procedure is required when a new lamp is installed into the TLS. This simple installation and alignment procedure can be done in minutes. See our website for an instructional video demonstrating this procedure.

INCLUDES TRACQ VERSION 6.6 SOFTWARE



The TLS includes TracQ BASIC Version 6.6: the newest, most advanced version of Oriel's TracQ Instrument Control and Data Acquisition software. Using the Cornerstone 130 Monochromator's USB or RS232/GPIB (IEEE-488) 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 TLS 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 TLS by TracQ include:

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

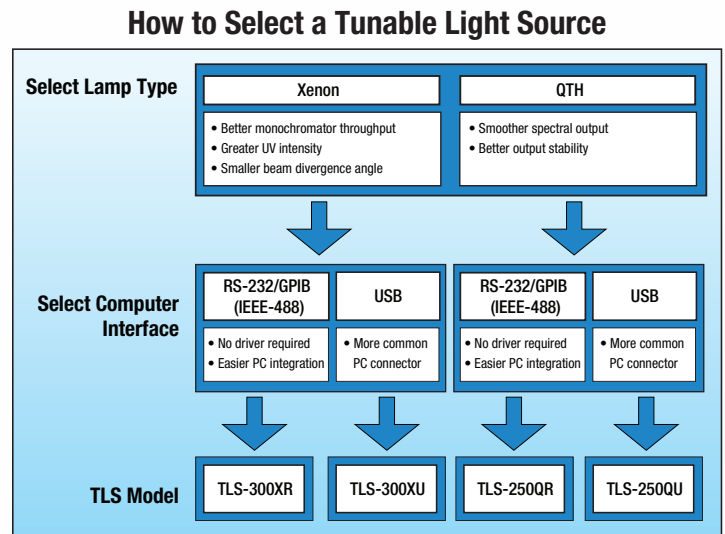
TracQ Basic is compatible with Windows 7 (32-bit or 64-bit) operating systems.

EACH UNIT TESTED TO MEET ORIEL STANDARDS

Each TLS 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:

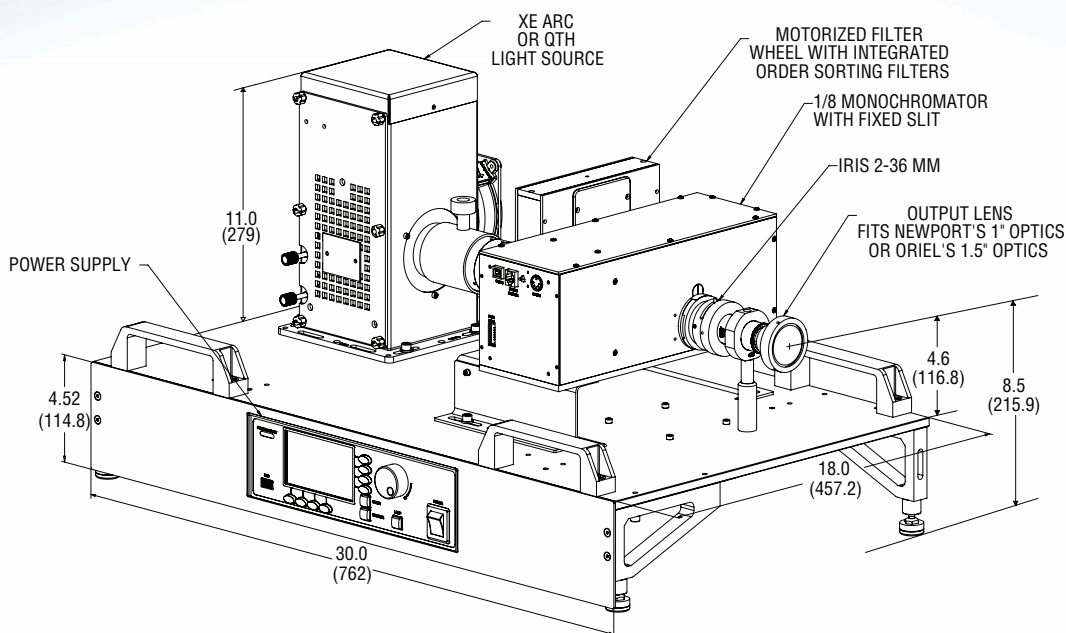
- Spectral Output Irradiance measured from 350-1650 nm
- Beam Spot Size and Beam Divergence Angle
- Temporal Stability
- Beam Uniformity
- Wavelength Accuracy

WHICH TLS IS RIGHT FOR ME?



Four versions of the Tunable Light Source are available. The TLS model chosen should be based on which lamp type is required and which external control method is preferred. Users interested in Xe Arc Lamp Model Tunable Light Sources can go to <http://www.newport.com/Xe-Arc> for more information.

Dimensions



TLS SYSTEM

	TLS-250QU	TLS-250QR
Lamp Type	250 W DC Quartz Tungsten Halogen	
Lamp Lifetime	50 hrs	
Tunable Range	350-1800 nm	
Computer Interface	USB	RS232/GPIB (IEEE-488)
Beam Uniformity ¹	±15%	
Output Beam Divergence ²	2.00 ± 0.25°	
Beam Diameter ³ (in. [mm])	0.85 ± 0.05 [21.59 ± 1.27]	
Light Ripple	< 0.05%	
Wavelength Repeatability ⁴	± 0.11 nm	
Wavelength Accuracy ⁵	< 1 nm	
Spectral Resolution ⁶	5 nm	
Grating	600 lines/mm ruled diffraction grating, Quantity 2 installed	
Integrated Filter Wheel	Automated, 6-position motorized filter wheel	
Filter Wheel Speed	< 2 second per position	
Order Sorting Filters	Quantity 4 installed	
Slit	Quantity 2, 280 μm (W) x 18mm (H) fixed slit Quantity 2, 600 μm (W) x 18mm (H) fixed slit	
Iris	Manual Iris, 0.08-1.42 in. [2-36 mm] diameter	
Beam Coupling	1" Newport Lens Tube and 1.5" Oriel Female Flange	
Optical Height ⁷ (in. [mm])	4.6 [116.8]	
Light Intensity Control ⁸	Optional	
TEC Controller Range	0 – 25°C	
Photo Feedback	Included	
Shutter Controller	Included	
Power Supply Operation Mode	Constant Current, Power or Intensity	
AC Voltage Input	Monochromator and OPS Power Supply: 100 to 240 VAC; 47 to 63 Hz	
Lamp Current	11 A	
Operating Temperature	15° C - 40° C	
Storage Temperature	0° C - 50° C	
Dimensions (in. [mm])	30.0" x 18.0" x 15.5" [762.0 x 457.2 x 393.8 mm]	
Weight (lbs [kg])	60 lbs [27.2 kg]	
Software	TracQ Basic V6.6	

¹ Beam uniformity measured with beam profiler at 550nm wavelength.
² Beam divergence measured in full angle at horizontal axis.
³ Beam diameter measured at 4" from exit aperture.
⁴ Ability of a wavelength to be consistently reproduced.
⁵ Capability of the monochromator to output the desired wavelength.
⁶ Spectral resolution based on 280nm slit.
⁷ Height measured from baseplate.
⁸ Optional LIK-LMP purchased is required.

SOFTWARE FUNCTION AND REQUIREMENTS

Set General Scan Parameters	Starting and ending wavelength, interval, wait between intervals, prescan wait
Scan 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	GPIB board index and address, RS232 comm port
Operating System	Microsoft Windows 7 (32-bit or 64-bit)
Processor	2 GHz
RAM	1 Gb
Hard Drive	800 Mb free space

Accessories

REPLACEMENT PARTS

6334NS	250 Watt Quartz Tungsten Halogen Lamp
60043	Socket Adapter, 50 to 250W QTH Lamps, For Q Series and Research Series Lamp Housings
70044	Cable, USB 2.0, Type A to Type B, 9.8 Foot (3 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
77216	Fixed Slit, 600 μm Width, 18 mm Height
77217	Fixed Slit, 280 μm Width, 18 mm Height
LT10-UADPT	Adapter, Oriel 1.5-Inch Series Flange to Newport 1-Inch LT Series

SLITS

The TLS light source includes 280 and 600 μm slits. The slits shown below are compatible with the TLS and can be used to adjust resolution or throughput.

77219	Fixed Slit, 50 μm Width, 6 mm Height
77218	Fixed Slit, 120 μm Width, 18 mm Height
77215	Fixed Slit, 760 μm Width, 18 mm Height
77214	Fixed Slit, 1240 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

COMMUNICATION CABLES

70038	Cable, GPIB (IEEE-488), 6 Foot (1.8 Meter) Length
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

COMPATIBLE ELECTRONICS

LIK-LMP	Light Intensity Controller kit for OPS Series Power Supplies and Research Lamp/Series Q Lamp Housings
---------	---

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 TLS and optically focuses this light output onto one of Oriel's Light Guides or Fiber Bundles.

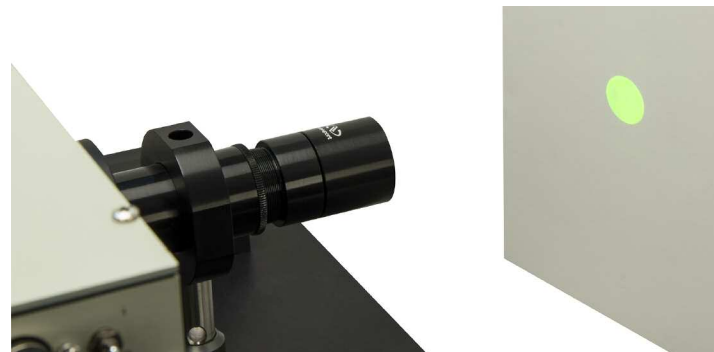
Fiber Bundle Focusing Assembly

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