

# TLS-EQ-77-NIR

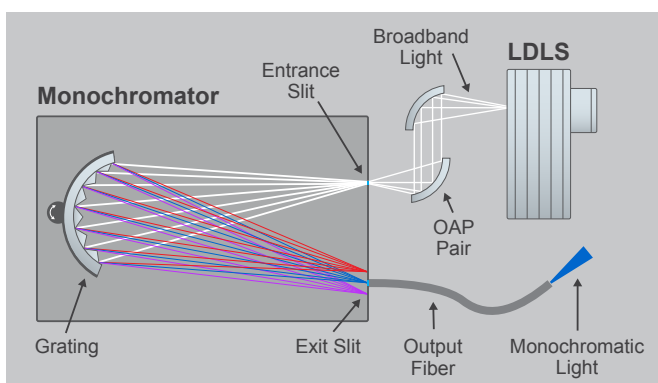
## Laser-Driven Tunable Light Source



### Overview

The TLS-EQ-77-NIR is a flexible wavelength tunable light source (TLS) built around Energetiq's Laser-Driven Light Source (LDLS®) platform. This exciting technology provides a wide wavelength range of tunability, high spectral resolution, fast wavelength scanning and an extremely long lifetime with the added benefit of a convenient fiber-coupled output.

### Principle of Operation



### Consumable Components

| Part Number       | Lifetime     | Description  |
|-------------------|--------------|--|
| EQ-77-RB5         | 10,000 hours | Replacement Bulb (Not Field Replaceable)           |
| EQ-77-RW-BK7      | 10,000 hours | EQ-77 Replacement Window (Not Field Replaceable)   |
| Fiber Optic Cable | 10,000 hours | Available fibers listed in the Accessories section |

### Properties

|  |                             |
|--|-----------------------------|
| Wavelength Range                         | 800 nm – 1700 nm            |
| Scan Speed                               | <20 ms per 2 nm step        |
| Numerical Aperture (1.5 mm Output fiber) | 0.39 NA                     |
| Bulb Lifetime                            | 10,000 hours                |
| Laser Class                              | Class 1 (IEC 60825-1: 2014) |
| Compliance                               | CE Mark                     |

### Typical Performance

|                                       |                  |
|---------------------------------------|------------------|
| Maximum in-band flux*                 | 1.6 mW at 920 nm |
| Average in-band flux*                 | 0.44 mW          |
| Spectral Resolution (bandwidth, FWHM) | 9 nm             |

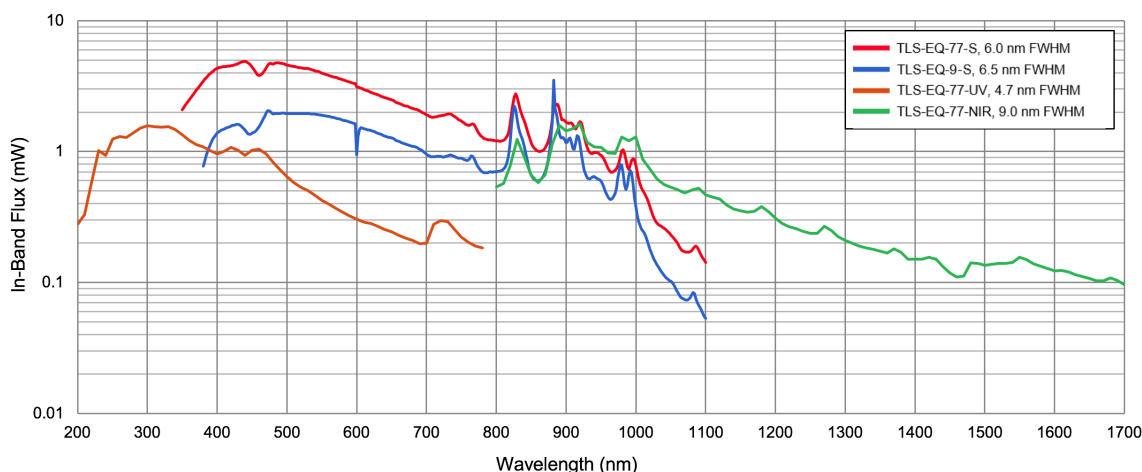
\*1500  $\mu\text{m}$  core diameter fiber optic cable

### Models

The TLS models provide a scalable solution covering a broad wavelength range from UV through visible to NIR.

| Part Number   | Description  | Wavelength Range |
|---------------|--|------------------|
| TLS-EQ-9-S    | Tunable light source with EQ-9 LDLS, optimized for visible and NIR wavelengths.  | 380 nm – 1100 nm |
| TLS-EQ-77-S   | Tunable light source with EQ-77 LDLS, optimized for visible and NIR wavelengths. | 350 nm – 1100 nm |
| TLS-EQ-77-UV  | Tunable light source with EQ-77 LDLS, optimized for UV wavelengths               | 200 nm – 770 nm  |
| TLS-EQ-77-NIR | Tunable light source with EQ-77 LDLS, optimized for NIR wavelengths              | 800 nm – 1700 nm |

### In-Band Light Flux Comparison *Average in-band light flux with standard output fibers. For reference only.*



## Accessories

| Part Number                 | Description  |
|-----------------------------|--|
| TLS-FIBER-1500-09 M-SMA-SMA | Standard fiber included with system (1.5 mm dia., 0.9 M length, Output termination: SMA) |
| TLS-FIBER-1500-2M-FC-SMA    | Replacement fiber (1.5 mm dia., 2 M length, Output termination: FC)                      |
| TLS-FIBER-1500-10M-FC-SMA   | Replacement fiber (1.5 mm dia., 10 M length, Output termination: FC)                     |

## User Interface

The system interfaces with Windows operating system through a Mini USB connector. Software includes basic controls, an enhanced user interface and Dynamic Link Library (\*.dll) for custom control.

TLS can be used in two modes: go-to-wavelength or cycle/sweep. The user is also able to adjust the filter wheel transition for the order sorting filter via the software.

| Position | Light Path  |
|----------|---|
| 1        | Closed  |
| 2        | Order sorting filter, 760 nm long wavelength pass   |
| 3        | Order sorting filter, 1,000 nm long wavelength pass |

During a wavelength sweep, it is recommended that you use position 2 for wavelengths between **800 nm and 1299 nm** and transition to position 3 for wavelengths of **1300 nm or greater**.

## Facility Requirements

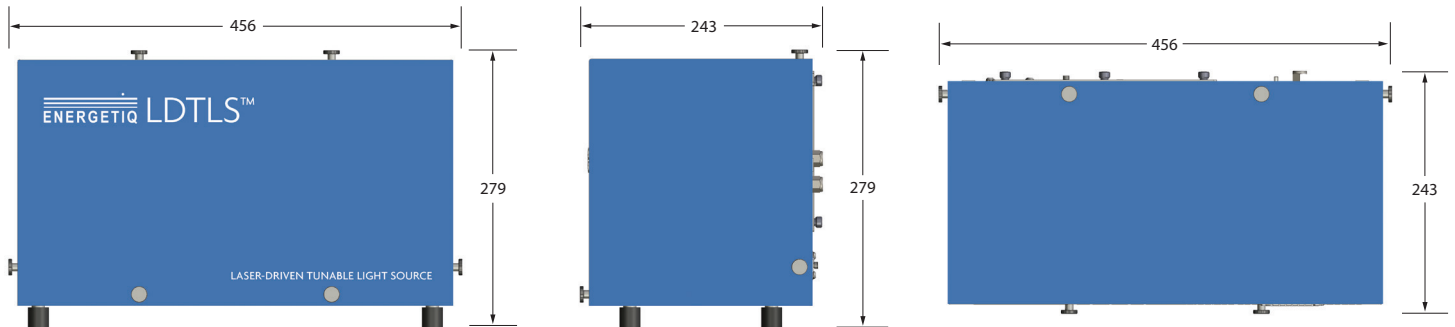
|                      |   |
|----------------------|---|
| Electrical           | 100-240 VAC, single phase<br>50-60 Hz<br>350 W max. (LDLS)<br>50 W max. (TLS monochromator) |
| Cooling (System)     | ≥ 0.5 liter/minute, 18-30 °C,<br>100 psig (0.69 MPa) max. inlet pressure                    |
| Cooling (Controller) | No auxiliary cooling required   |
| Nitrogen Purge       | Recommended. Grade 4.8 or higher, filtered to 5 µm.20 psig ±2                               |
| Ambient Temperature  | 15-35 °C  |

## Physical Specifications

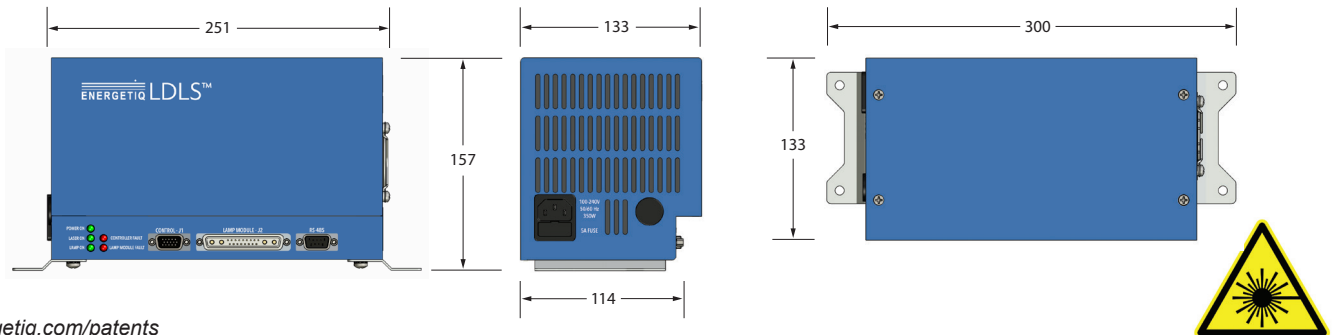
|                                   |                    |
|-----------------------------------|--------------------|
| System Dimensions (H x W x D)     | 279 x 456 x 243 mm |
| System Weight                     | 16.6 kg            |
| Controller Dimensions (H x W x D) | 157 x 300 x 133 mm |
| Controller Weight                 | 2.9 kg             |

## System Dimensions (Unit: mm)

Drawings are for reference only and are not to scale. STEP file available.



## Controller Dimensions (Unit: mm)



[www.energetiq.com/patents](http://www.energetiq.com/patents)



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Specifications are subject to change without notice.  
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