

WhisperIT® Standard Laser (WSL-FS series)

WhisperIT® WSL-FS series lasers offer robust packaging for higher power operation. Excellent signal-to-noise and low coherence leads to a reduction of laser speckle and the elimination of diffraction patterns. High reliability & consistent performance enables demanding biomedical and scientific instrumentation applications.

WhisperIT® WSL-FS series lasers are laser diode-based continuous-wave solid-state lasers that offer significantly increased lifetime, and improved efficiency over DPSS, HeCd or Argon lasers. The proprietary WhisperIT® technology eliminates mode hops and delivers lasers with extremely low optical noise.

WhisperIT® WSL-FS series lasers with integrated patented driver electronics for highly stable, low coherence and low speckle operation guarantees outstanding performance over time and temperature.

The WhisperIT® WSL-FS series lasers are available with round or customize beam shape that are tailored to match specific application requirements.

FEATURES

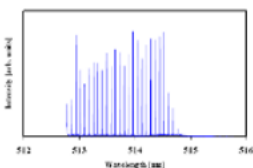
- Ultra-Low Noise
- Low Coherence
- Mode-hop Free
- Integrated Control Electronics
- Digital, Analog or Custom Modulation

APPLICATIONS

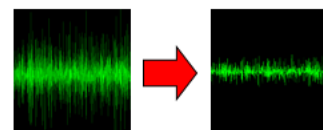
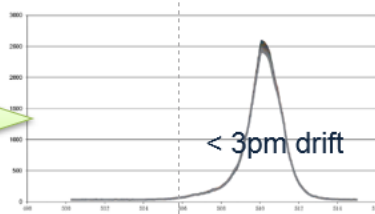
- Flow Cytometry
- DNA Sequencing
- Medical Imaging
- Confocal Microscopy
- Optogenetics
- Metrology
- Semiconductor Instrumentation



Laser diode and mode hop



Whisper IT®



Low Noise

Table 1. Optical Specification

SPECIFICATIONS	WSL405	WSL488	WSL505	WSL515
Wavelength (nm)*	405±5	488±5	505±5	515±5
Output Power (mW)**	20,50,80,100,150,200,250	20,50,80,100,150,200	20,50,80	20,50,80,100,150
RMS Noise (20Hz to 2 MHz) (%)	≤0.1	≤0.1	≤0.1	≤0.1
Peak to Peak Noise (20Hz to 20kHz) (%)	<0.5	<0.5	<0.5	<0.5
Long-Term Power Stability (2hrs, ±3°C) (%)	<2	<2	<2	<2
Spatial Mode (TEM ₀₀) M ²	≤1.2	≤1.2	≤1.2	≤1.2
Beam Symmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
Beam Diameter at 1/e ² (mm)@50mm	0.85±0.1	0.7±0.1	0.7±0.1	0.75±0.1
Beam Divergence Angle (mrad, full angle)	<1.2	<1.2	<1.2	<1.2
Pointing Stability (μrad) (over 2 hours after warm up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temperature (μrad/°C)	<5	<5	<5	<5
Warm-up Time (from cold start) (minutes)	<5	<5	<5	<5
Polarization Ratio	>100:1	>100:1	>100:1	>100:1
Polarization Direction	Vertical ±5°	Vertical ±5°	Vertical ±5°	Vertical ±5°

SPECIFICATIONS	WSL532	WSL553/561	WSL638	WSL785
Wavelength (nm)*	532±5	553/561±3	638±5	785±5
Output Power (mW)**	20,50,80,100	20,50,100,200	20,50,80,100,150	20,50,80, 100
RMS Noise (20Hz to 2 MHz) (%)	≤0.25	≤0.25	≤0.1	≤0.1
Peak to Peak Noise (20Hz to 20kHz) (%)	<1	<1	<0.5	<0.5
Long-Term Power Stability (2hrs, ±3°C) (%)	<2	<2	<2	<2
Spatial Mode (TEM ₀₀) M ²	≤1.1	≤1.1	≤1.2	≤1.2
Beam Symmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
Beam Diameter at 1/e ² (mm) @50mm	0.7±0.1	0.7±0.1	0.7±0.1	0.75±0.1
Beam Divergence Angle (mrad, full angle)	<1.2	<1.2	<1.3	<1.7
Pointing Stability (μrad) (over 2 hours after warm up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temperature (μrad/°C)	<5	<5	<5	<5
Warm-up Time (from cold start) (minutes)	<5	<5	<5	<5
Polarization Ratio	>100:1	>100:1	>100:1	>100:1
Polarization Direction	Vertical ±5°	Vertical ±5°	Vertical ±5°	Vertical ±5°

*Other wavelengths are available.

**Output power is variable in CW mode from 10% to 100% of rated power. Specifications are valid for 100% power.

Table 2. Mechanical & Environmental Specification

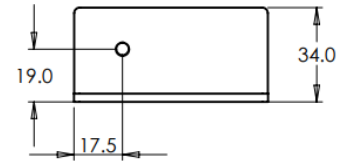
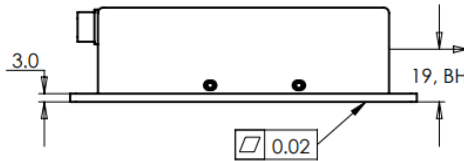
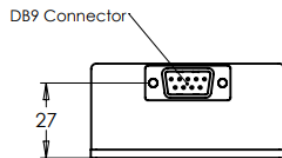
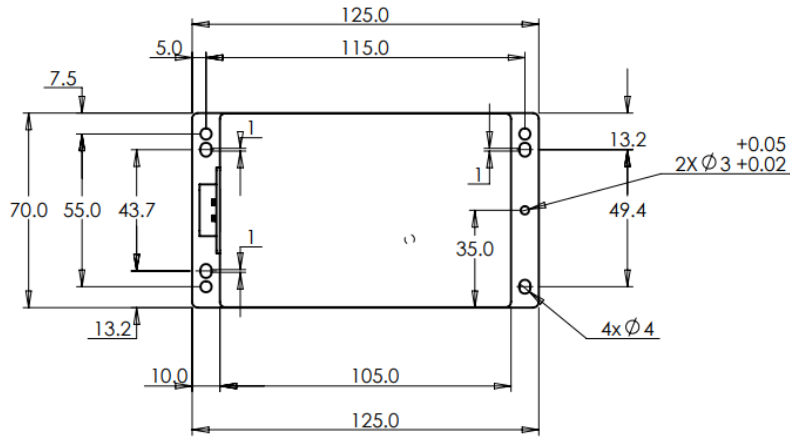
Static Alignment Tolerances	All Wavelengths
Beam Position from Reference (mm)	±0.5
Beam Angle (mrad)	±2.5
Beam Waist Position from Exit Window (mm)	±200
Dimensions (L x W x H) (mm)	125 x 70 x 34
Power Consumption (W)	≤12
Laser Head Baseplate Temperature (Max. °C)	40
Heat Dissipation of Laser Head (W)	≤12
Operating Temperature (°C)	10 to 50
Storage Temperature (°C)	-20 to 60
Humidity (%)	10 to 90
Shock (11ms duration) (Operating) (g)	1
Shock (11ms duration) (Non-operating) (g)	30
Vibration (5Hz – 500Hz) (Operating) (g)	0.3
Vibration (5Hz – 500Hz) (Non-operating) (g)	3
Laser Safety Classification	3b

Table 3: Electrical Specification

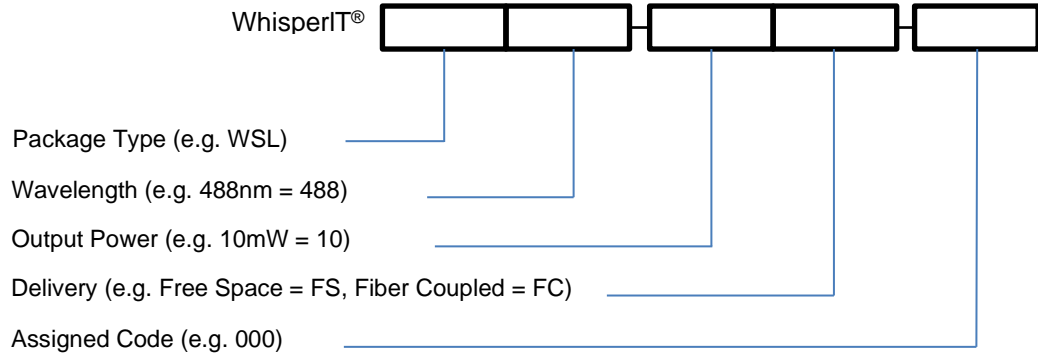
DB9 Connector PIN Assignment	Digital Interface	Analog Interface
1*	LD_5V or 9V or 12V	LD_5V or 9V or 12V
2	Rx for RS232	NC
3	TEC_5V	TEC_5V
4	Tx for RS232	NC
5	TEC_GND	TEC_GND
6	NC	ADJ
7	NC	Enable
8	GND for RS232	NC
9	LD_GND	LD_GND

*405/488/505/515nm LD driving voltage: 9V or 12V; 532/561/638/785nm LD driving voltage: 5V

MECHANICAL SPECIFICATIONS



Order Code



Example: WSL488-20FS-000

This OEM laser does not comply with 21 CFR 1040.10 and 1040.11 without appropriate integration. Please contact Pavilion Integration Corp. for additional support or questions.

ISO9001 & ISO13485 Registered

