PT277 SERIES

Single Housing NIR-IR Range Tunable Picosecond Laser

FEATURES

- ***1400–4450 nm*** *tuning range*
- *Nearly Fourier transform-limited linewidth*
- *Nearly diffraction limited divergence*
- *Output wavelength monitoring (optional)*
- *PC control*

APPLICATIONS

- *Infrared microscopy*
- *Infrared spectroscopy*
- *Near field spectroscopy*

PT277 series laser systems integrate a picosecond optical parametric oscillator and DPSS pump laser into a single compact housing. Mounting the components into one frame provides a cost-effective and robust solution with improved long-term stability and reduced maintenance costs.

The tuning range is for the model PT277 1400 – 2050 and 2200 to 4450 nm with nearly Fourier transform limited linewidth.

The microprocessor-controlled wavelength tuning is fully automatic. The wavelength controlling elements are mounted on precise micro-stepping motors. The temperature of the non-linear crystal is controlled by a precise thermocontroller with a bidirectional Peltier element, resulting in the fast tuning of crystal temperature. For customer convenience the system can be controlled through USB (VCP, ASCII commands), RS232 (ASCII commands), LAN (REST API) or RS232 (ASCII commands), LAN (REST API) depending on the system configuration or a remote control pad. Both options allow easy control of system settings.

TUNING CURVES

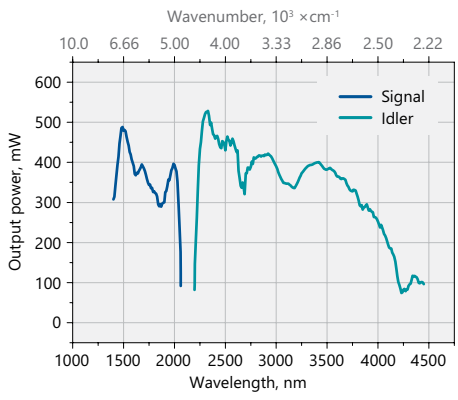

Fig 1. Typical output power of PT277 tunable laser.
The power is shown only at the wavelengths where ambient air absorption is negligible

SPECIFICATIONS [1]

Model	PT277
Pulse repetition rate [2]	87 MHz
Tuning range	
Signal	1400 – 2050 nm
Idler	2200 – 4450 nm
Output power [3]	
OPO [4]	> 500 mW
Linewidth [4]	< 2.5 cm^{-1}
Typical pulse duration [4] [5]	70 ps
Scanning step	
Signal	0.1 nm
Idler	0.1 nm
Polarization	
Signal beam	horizontal
Idler beam	horizontal
Typical beam diameter [4] [6]	~2 mm
Typical beam diameter, Idler [4] [6]	~5 mm
Typical beam divergence [4] [7]	< 2 mrad
PHYSICAL CHARACTERISTICS	
Unit size (W × L × H)	370 × 800 × 260 mm
Power supply size (W × L × H)	520 × 500 × 290 mm
Umbilical length	2 m
OPERATING REQUIREMENTS	
Cooling	water-air
Room temperature	22 ± 2 °C
Relative humidity	20 – 80 % (noncondensing)
Power requirements	100 – 240 V AC, single phase 50/60 Hz
Power consumption	< 1 kVA

1) Due to continuous improvement, all specifications are subject to change without notice. Parameters marked 'typical' are indications of typical performance (not specifications) and will vary with each unit we manufacture. Unless stated otherwise, all specifications are measured at 1064 nm and for basic system without options.

2) Inquire for custom pulse repetition rates.

3) Output powers are specified at selected wavelengths. See typical tuning curves for power at other wavelengths.

4) Measured at 1600 nm for PT277 model at signal range.

5) Pulse duration can vary depending on wavelength and pump energy.

6) Beam diameter at the $1/e^2$ level and can vary depending on the pump pulse energy.

7) Full angle measured at the FWHM level.

OUTLINE DRAWINGS

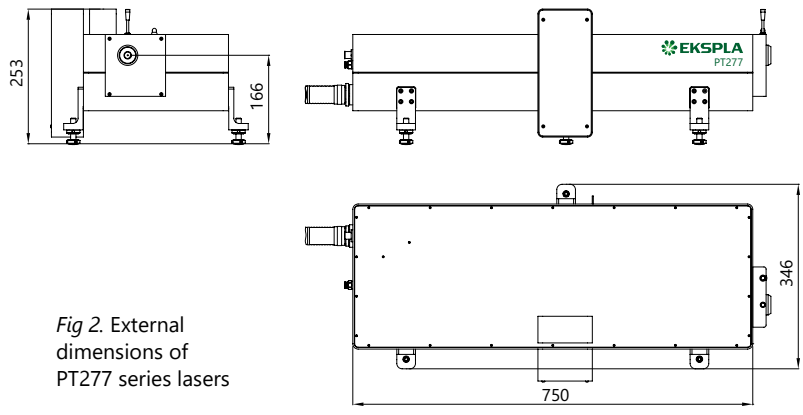

Fig 2. External dimensions of PT277 series lasers

Note: Laser must be connected to the mains electricity all the time. If there will be no mains electricity for longer that 1 hour then laser (system) needs warm up for a few hours before switching on.

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