



# 2000nm Ultrafast Fiber Laser 2000nm High Power Ultrafast Laser STP2000ULP & STR2000HP



**2023 V1**

For customized projects please Contact us:

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## 2000 nm Ultrafast Fiber Laser - STP2000ULP

STP2000ULP is a thulium-fiber based high-performance ultrafast fiber laser specifically designed for scientific users and has flexible parameters upon user requests. It has a center wavelength of  $1970 \pm 10$  nm, a pulse width of 200 fs (15 ps Optional), repetition rate of 80MHz, and an average output power of 200mW (4W Optional).

STP2000ULP is based on SESAM passive locking technology and has an all-PM fiber structure. It uses SIMTRUM Lasers' proprietary optical switch packaging technology and integrates with SIMTRUM Lasers' unique "Smart-Lock" processes to ensure long-term stability and reliability. The laser is an easy-to-use turn-key system and can also be computer controlled.

STP2000ULP is well-suited for applications such as Mid-IR frequency conversion, Nonlinear optics and Silicon photonics. It can meet a broad range of R&D requirements of the scientific community.



### Key Features

- Customizable wavelength
- Femtosecond level
- Linear polarization
- Diffraction-limited beam

### Applications

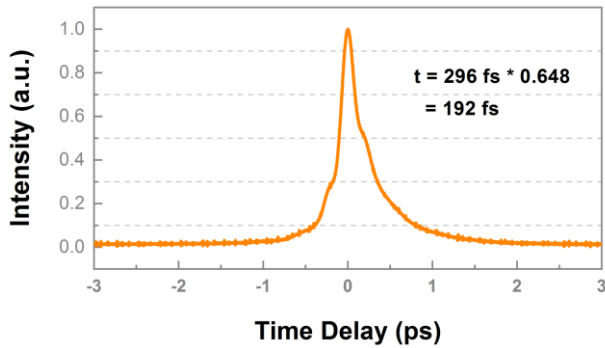
- Mid-IR Frequency Conversion
- Nonlinear optics
- Multiphoton imaging
- Mid-IR spectroscopy
- Silicon photonics

## Main Specification

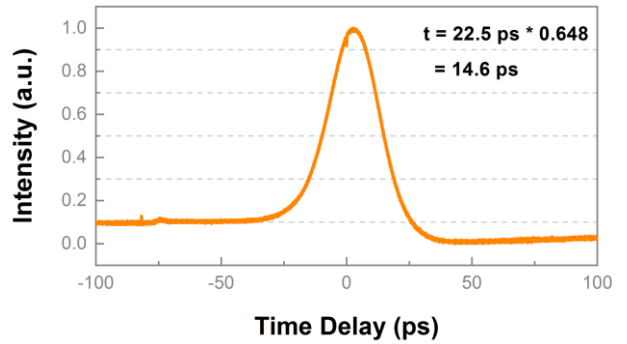
Laser Parameters		
Operating Wavelength	nm	$1970 \pm 10$ nm
Pulse Width (FWHM)	fs, ps	200 fs; 15 ps
Polarization Extinction Ratio	dB	> 20 dB
Repetition Rate	MHz	80 MHz
Average Power	mW, W	> 200 mW (200 fs); 4 W (15 ps)
Average Power Stability	% RMS	< 0.5 %RMS (12h@25°C)
Single-pulse Energy	nJ	2.5 nJ (200 fs); 50 nJ (15 ps)
Output Fiber		FC/APC connector (200 fs); Free-space (15 ps)
Electrical, Environmental and Mechanical Parameters		
Supply Voltage	VAC	100-240
Operational Temperature Range	°C	15-35
Operational Humidity Range	°C	20-80
Weight	kg	17
Dimensions	mm (LxWxH)	390 x 297 x 115
Cooling		Air Cooling

## Test Data

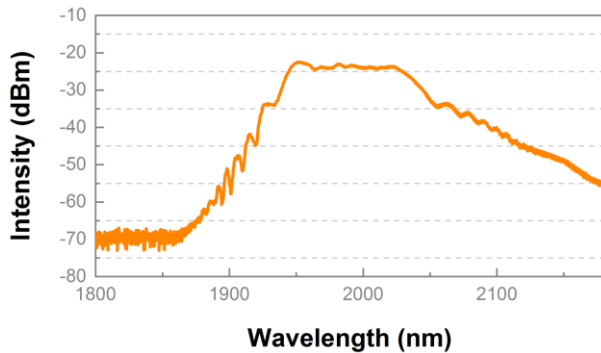
Typical Autocorrelation Trace @200 fs



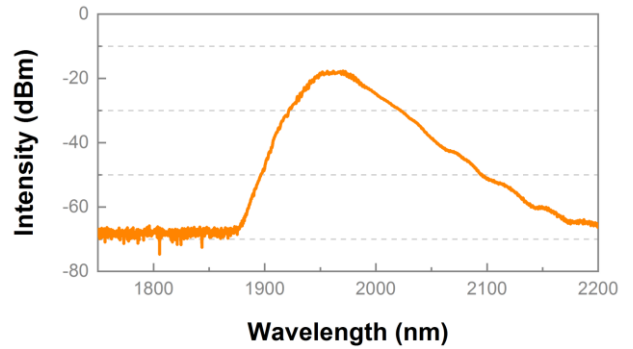
Typical Autocorrelation Trace @15 ps



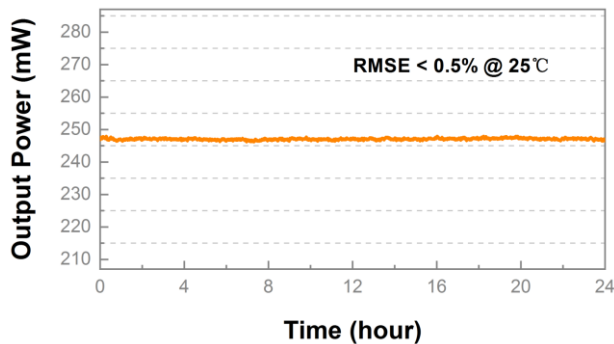
Output Spectrum @200 fs



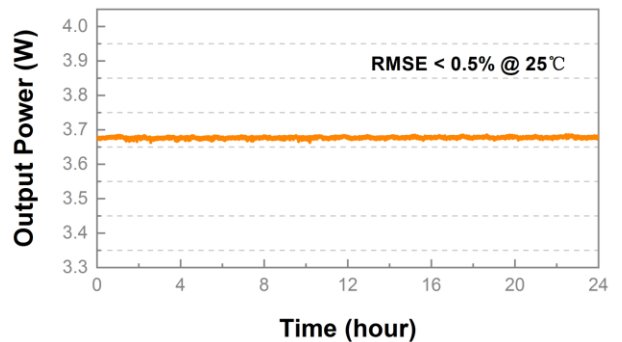
Output Spectrum @15 ps



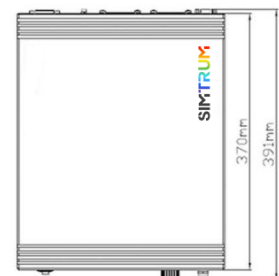
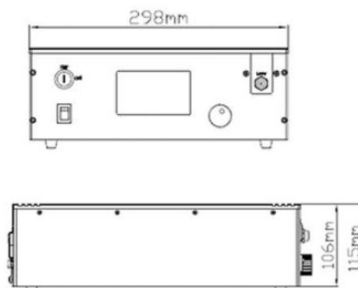
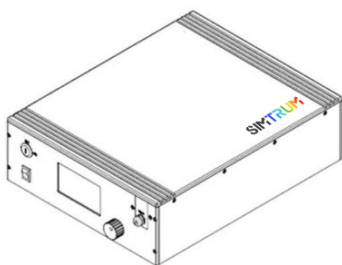
Average Power Stability @200 fs



Average Power Stability @15 ps



## Machine Drawing



## 2000 nm High Power Ultrafast Fiber Laser - STR2000HP

STR2000HP represents the long-wavelength capabilities of SIMTRUM's Watt-level femtosecond oscillators. It utilizes a unique dispersion engineering technology to ensure good balance between pulse duration and spectral width. The standard product has a center wavelength of  $1970 \pm 10\text{nm}$ , a pulse width of  $<300\text{ fs}$ , repetition rate of  $80 \pm 1\text{ MHz}$ , and an average output power of  $>1\text{ W}$ . As with our other ultrafast products, STR2000HP has flexible parameters upon user requests.

STR2000HP is well-suited for applications such as Mid-IR frequency conversion, Nonlinear optics and Silicon photonics. It can meet a broad range of R&D requirements of the scientific community.



### Key Features

- Long-term stable operation
- High pulse energy
- Reliable mode-locking
- All-PM solution

### Applications

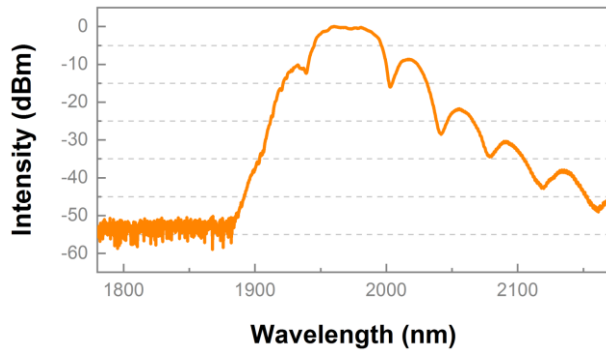
- Mid-IR Frequency Conversion
- Nonlinear optics
- Mid-IR spectroscopy
- Silicon photonics

## Main Specification

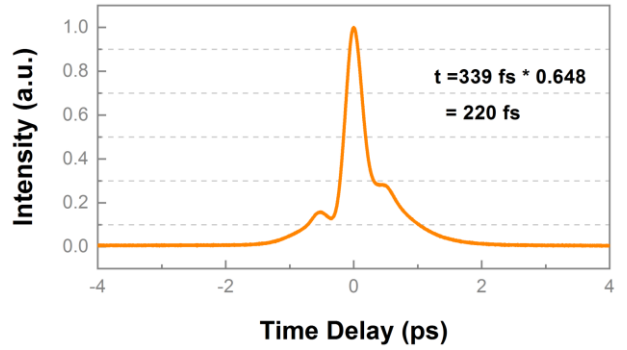
Laser Parameters		
Operating Wavelength	nm	$1970 \pm 10\text{ nm}$
Pulse Width (FWHM)	fs	$< 300\text{ fs}$ (Typical $< 250\text{ fs}$ )
Polarization Extinction Ratio	dB	$> 20\text{ dB}$
Repetition Rate	MHz	$80 \pm 1\text{ MHz}$
Average Power	W	$> 1\text{ W}$
Average Power Stability	% RMS	$< 0.5\% \text{ RMS}$ (12h@25°C)
Single-pulse Energy	nJ	$> 12.5\text{ nJ}$
Output Fiber		Spatially collimated output
Electrical, Environmental and Mechanical Parameters		
Supply Voltage	VAC	100-240
Operational Temperature Range	°C	15-35
Operational Humidity Range	°C	20-80 (non-condensing)
Weight	kg	20
Dimensions	mm (LxWxH)	445 x 300 x 134 , 390 x 445 x 94
Cooling		Air Cooling

## Test Data

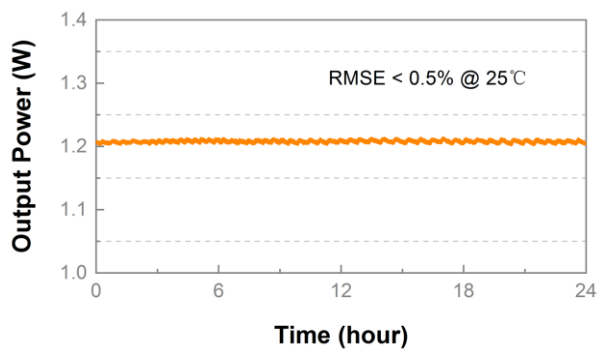
### Output Spectrum



### Typical Output Pulse Width



### Power Stability



## Machine Drawing

