

# CYFL-TERA

CW YTTERBIUM FIBER LASER , TERAHERTZ LINEWIDTH



1.0  $\mu\text{m}$

B 201 / B 203

B 306



1060 to 1090 nm operating wavelength,  
Output power up to 20 W,  
...

CYFL-TERA series are Ytterbium-doped fiber lasers providing an output power up to 20 W. The Lumibird optical architecture permits to deliver a diffraction limited output beam suitable for spectroscopy.

Laser trapping, optical tweezing or spectroscopy are among the applications that can be met with the CYFL-TERA lasers series.

These ytterbium fiber lasers provide an output power of 20W with a linewidth of few nm. CYFL-TERA are available in random or linear polarization.

An amplitude modulation option is proposed to modulate the output power up to 1KHz with an external TTL signal.

These lasers are among the most efficient ones with a wall-plug efficiency of 20%.

The lasers are available in standard as turnkey benchtops for laboratory environments.

The amplifiers are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to monitor the amplifier via the front panel or remotely via serial port. Both models offer robustness and reliability.

## Key features

- 1060 to 1090 nm operating wavelength
- Output power up to 20 W
- Linewidth of a few nm
- Amplitude modulation (optional)
- Diffraction limited output
- Random or linear polarization
- High wall-plug efficiency
- Maintenance free

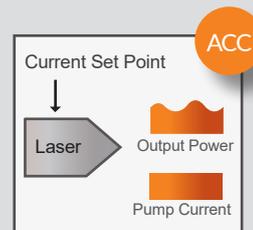
## What applications

- Optical component testing
- Laser trapping spectroscopy
- Atomic laser interferometry
- Optical tweezing

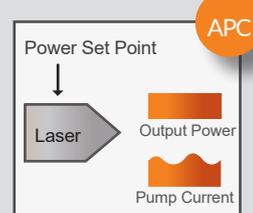


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The laser is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the laser at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CYFL-TERA

CW YTTERBIUM FIBER LASER , TERAHERTZ LINEWIDTH



<i>Optical Specifications</i> @ 25 °C	CYFL-TERA
Mode of operation	CW or modulation
Output power	From 1 to 20 W
Standard operating wavelength	1075 +/-15 nm
Linewidth (FWHM)	< 2 nm
Output power stability over 1 hour	< 2 % rms
Polarization	Random or Linear
Amplitude modulation	Option (up to 20 kHz)
Red laser guide	Option
Output power monitor	Option (APC : Internal photodiode and automatic power control mode)
Beam quality, M <sup>2</sup>	< 1.1
Output termination	FC/APC or Collimator

The CYFL-TERA is available as turn-key benchtop or as OEM modules on specific request.

## RELIABILITY

The Lumibird range of fiber amplifiers are manufactured with tested components and are submitted to several inspections during the manufacturing process under a rigorous quality management certified in accordance with the ISO 9001:2015 standard. Our all-in-fiber systems offer maintenance-free operation. Countless units are continuously running in demanding environments with no failure.

## GUARANTEE

Our fiber systems are under 1 full year parts and labor warranty. We offer a warranty extension of 1 or 2 years. Please contact us.

For ordering information and custom solutions, please contact us : [websales@keopsys.com](mailto:websales@keopsys.com)



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# CYFL-GIGA

CONTINUOUS WAVE YTTERBIUM FIBER LASER

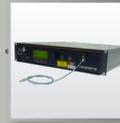


1.0  $\mu\text{m}$



B 301

B 206



Output power up to 20 W,  
1083 nm standard wavelength,  
...

CYFL-GIGA series are Ytterbium-doped fiber lasers emitting at 1083 nm. These lasers are specially designed for helium pumping applications. Optical imaging for medical applications, study of the helium spin in the nuclear field, absorption spectroscopy and nuclear physics are among the large list of applications with this fiber laser.

Designed in cooperation with an University research team, this patented ytterbium fiber laser is stable, robust and easy to use.

The CYFL-GIGA series can deliver a high output power, up to 20 watts.

Standard operating wavelength is 1083 nm, but other wavelengths can be requested on a custom basis. The series includes polarization maintaining models.

One particular property is the linewidth of 1 or 2GHz, filled with a large number of single longitudinal modes. This allows consequently to achieve high pumping efficiency of gas atomic transition.

The Ytterbium fiber laser does not need maintenance thanks to a complete fiber design. On request, Lumibird provides free support for installation.

The CYFL-GIGA series are available in benchtops which offer the possibility to monitor the laser via the front panel or remotely via serial port. Both models offer robustness and reliability.

## Key features

- Output power up to 20 W
- 1083 nm standard wavelength
- 2 GHz linewidth
- Wavelength tuning up to 100 GHz (optional)
- Laser frequency modulation (optional)
- Random or linear polarization
- Excellent SMSR
- Diffraction limited output
- Robust and reliable
- Turn-key system

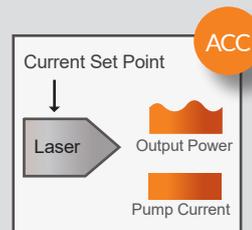
## What applications

- Medical imaging
- Nuclear physics
- Helium pumping for medical lung imaging
- Absorption spectroscopy
- Wavelength conversion

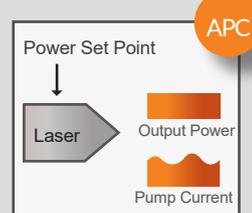


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The laser is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the laser at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CYFL-GIGA

CONTINUOUS WAVE YTTERBIUM FIBER LASER



## Optical Specifications

@ 25 °C

	CYFL-GIGA
Mode of operation	CW
Output power	From 2 to 20 W
Operating wavelength <sup>1</sup>	1083 nm
Wavelength stability over 1 hour, +/-1 °C	10 pm
Wavelength thermal tuning range	Option
Laser frequency modulation range	Option
Laser frequency modulation bandwidth	DC to 1 kHz (input analog voltage 0 to +4 V)
Spectral linewidth	2 GHz max
Power stability (rms) over 1 hour	<2 %
Polarization	Random or Linear (17 dB)
Seed Tap	Option
Output monitoring	Option (Internal photodiode and automatic power control mode)
Beam quality, M <sup>2</sup>	< 1.1
Output termination	FC/APC, E2PS or Collimated

1 : Standard wavelength, others are available on request

The CYFL-GIGA is available as turn-key benchtop.

### RELIABILITY

The Lumibird range of fiber amplifiers are manufactured with tested components and are submitted to several inspections during the manufacturing process under a rigorous quality management certified in accordance with the ISO 9001:2015 standard. Our all-in-fiber systems offer maintenance-free operation. Countless units are continuously running in demanding environments with no failure.

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# CYFL-MEGA

CONTINUOUS WAVE YTTERBIUM FIBER LASER  
1  $\mu\text{m}$  MEGALITE FIBER LASERS FOR SENSING AND SHG



1.0  $\mu\text{m}$



CYFL-MEGA stands for Continuous Ytterbium-Doped Fiber Laser. Based on a Lumibird patented design, the CYFL-MEGA provides a single mode operation and delivers a linewidth of few MHz up to 20 W of output power. No maintenance is required for this high-power fiber laser.

The CYFL-MEGA is the result of a long research and development activity on fiber lasers. The CYFL-MEGA series exhibit low relative intensity noise (RIN) and high optical power stability. Furthermore, the output beam is diffraction limited either in random or polarized versions. The design of the fiber laser allows the high stability of the polarization. Standard operating wavelength is 1064nm, but other wavelengths can be requested on a custom basis.

The CYFL-MEGA fiber laser is manufactured according a production process which ensures to all lasers a perfect reproducibility of performances and a high level of reliability. No specific installation is required, the ytterbium fiber laser is easy to install and operate. Run it and forget it.

The CYFL-MEGA series are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to monitor the laser via the front panel or remotely via serial port. Both models offer robustness and reliability.

## Key features

- Narrow linewidth of a few of MHz
- Single longitudinal mode
- 1064 nm standard operating wavelength
- Output power up to 20 W
- Wavelength tunability (optional)
- Laser frequency modulation (optional)
- Low amplitude noise
- Diffraction limited output
- Random or linear polarization
- Maintenance free

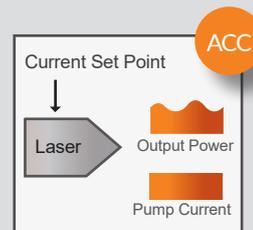
## What applications

- Sensing
- Second harmonic generation (SHG)
- Optical component testing

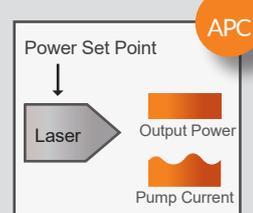


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The laser is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the laser at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CYFL-MEGA

CONTINUOUS WAVE YTTERBIUM FIBER LASER  
1  $\mu\text{m}$  MEGALITE FIBER LASERS FOR SENSING AND SHG



## Optical Specifications @ 25 °C

## CYFL-MEGA

Optical Specifications @ 25 °C		CYFL-MEGA
Mode of operation		CW
Output power		From 1 to 20 W
Standard operating wavelength		1064 nm
Wavelength stability over 1 hour, +/-1 °C		10pm
Wavelength thermal tuning range		Option
Laser frequency modulation range		Option
Laser frequency modulation bandwidth		DC to 1 kHz (input analog voltage 0 to +4 V)
Spectral linewidth		4 MHz Typ, 20 MHz Max
Optical S/N ratio		>50 dB (+/-1 nm from central wavelength, 0.07 nm resolution)
Polarization		Random or Linear
Seed Tap		Option
Output monitoring		Option (Internal photodiode and automatic power control mode for P $\leq$ 15 W)
Beam quality, M <sup>2</sup>		< 1.1
Output termination		FC/APC, E2PS or Collimated

The CYFL-MEGA is available as turn-key benchtop or as OEM module.

### RELIABILITY

The Lumibird range of fiber amplifiers are manufactured with tested components and are submitted to several inspections during the manufacturing process under a rigorous quality management certified in accordance with the ISO 9001:2015 standard. Our all-in-fiber systems offer maintenance-free operation. Countless units are continuously running in demanding environments with no failure.

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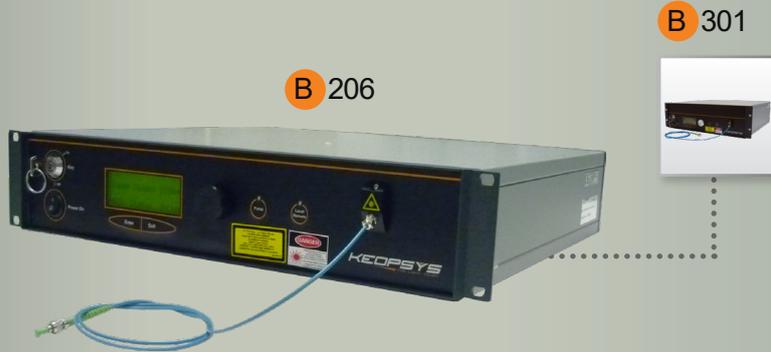


# CYFL-KILO

CONTINUOUS WAVE YTTERBIUM FIBER LASER  
1  $\mu\text{m}$  KILAS-COOL FIBER LASERS FOR COOLING



1.0  $\mu\text{m}$



Narrow linewidth,  
Single frequency laser,  
...

CYFL-KILO stands for Ytterbium fiber laser. The series provides a longitudinal single mode and frequency output laser beam. These lasers series deliver up to 20W with low phase noise and low Relative Intensity Noise.

Lumibird ytterbium fiber laser is manufactured for scientific applications as interferometry, quantum optics, metrology, atom trapping. Lumibird uses its knowledge and high-quality manufacturing process to produce a stable and reliable narrow linewidth fiber laser. Different central wavelengths are available in standard, 1030nm, 1064nm, 1083nm, and others on request. The ytterbium fiber laser can be randomly or linearly polarized. For applications like atomic trapping, or interferometry where a linear polarization is needed, then the CYFL-KILO polarization is highly stable.

Reliability and maintenance free are defining this single laser. Coming as an entirely integrated turnkey benchtop, which can be driven directly from the front face. The systems offer different controls mode either from the front face or via RS232.

No installation is required as the fiber laser is easy to use, however, on request Keopsys provides support for its first start.

## Key features

- Narrow linewidth
- Single frequency laser
- 1064 and 1083 nm standard operating wavelengths
- Output power up to 20 W
- Ultra low phase noise and RIN
- Excellent SMSR
- Wavelength tunability (optional)
- Laser frequency modulation (optional)
- Diffraction limited output
- Random or linear polarization
- Maintenance free
- Turn-key operation

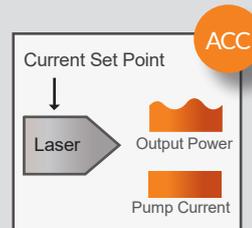
## What applications

- Quantum optics such as Bose-Einstein condensate
- Optical tweezing
- Atomic laser interferometry
- Formation of cold molecules
- Nonlinear optics (SHG, OPO)
- Metrology

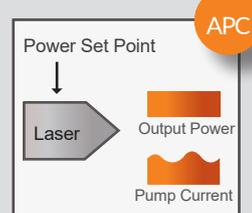


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The laser is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the laser at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CYFL-KILO

CONTINUOUS WAVE YTTERBIUM FIBER LASER  
1  $\mu$ m KILAS-COOL FIBER LASERS FOR COOLING



Optical Specifications @ 25 °C	CYFL-KILO
Mode of operation	CW
Output power	From 1 to 20 W
Standard operating wavelength	1064 and 1083 nm
Wavelength stability over 1 hour, +/-1 °C	+/-15 MHz
Wavelength thermal tuning range	Option
Laser frequency modulation range	Option
Laser frequency modulation bandwidth	DC to 100 kHz (G1) DC to 20 kHz (G2 and G3)
Spectral linewidth	<15 kHz (G1) <20 kHz (G2) <3 kHz (G3)
Output isolation	Yes
Polarization	Random or Linear (17 dB PER)
Seed Tap	Option
Output monitoring	Option (Internal photodiode and automatic power control mode if P $\leq$ 10 W)
Beam quality, M <sup>2</sup>	< 1.1 for P $\leq$ 2 W and < 1.3 for P $\geq$ 5 W
Output termination	FC/APC, E2PS or Collimated

The CYFL-KILO is available as turn-key benchtop.

## RELIABILITY

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