

# CYFL-KILO SERIES

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



## 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

## Description

**CYFL-KILO series are Ytterbium fiber doped lasers and provide a longitudinal single mode and frequency output laser beam. They deliver up to 20 W with low phase and intensity noise.**

CYFL-KILO are based on a MOFPA design, they integrate an ultra-low noise and narrow linewidth seed laser which is amplified through several stages Ytterbium doped amplifier. These lasers can be thermally tuned in wavelength over 70 GHz and their central emission line can be modulated for locking purposes. Robustness, reliability and maintenance free are defining this unique laser.

The Keopsys' MOFPA design insure reliable and robust systems which are coming as entirely integrated turn-key 3U rack for scientific and industrial applications. The systems offer different controls mode either from the front face or with a PC via RS232 using B2V2 Keopsys program.

## APPLICATIONS



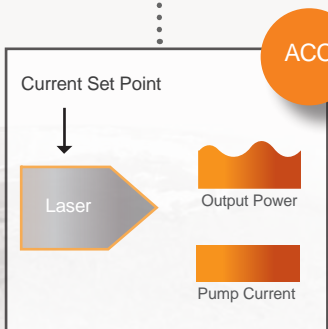
- Quantum optics such as Bose-Einstein condensate
- Optical tweezing
- Atomic laser interferometry
- Formation of cold molecules
- Nonlinear optics (SHG, OPO)
- Metrology

## 2 Platforms



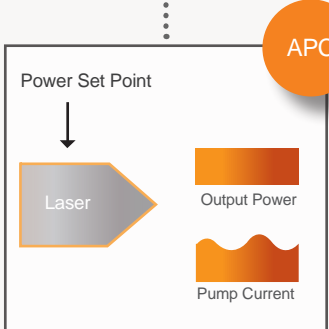
## Modes of operation

The devices offer several modes of operation :



**ACC**

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



**APC**

APC (Automatic Power Control) mode allows to control 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.

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1.0  $\mu\text{m}$  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 20 kHz (input analog voltage 0 to 200 V, 200 V/ms max)
Spectral linewidth	< 70 kHz
Output isolation	Yes
Polarization	Random or Linear (17 dB PER)
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

The CYFL-KILO series lasers are available as benchtop.

### RELIABILITY

The Keopsys range of fiber lasers 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 9001:2008 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 guarantee. We offer a warranty extension of 1 or 2 years. Please contact us.

## CYFL-KILO SERIES

1.0 μm KILAS-COOL FIBER LASERS FOR COOLING

### Optical Specifications

@ 25 °C

	CYFL-KILO				
	KILAS01	KILAS05	KILAS10	KILAS15	KILAS20
Mode of operation	CW				
Output power	1 W	5 W	10 W	15 W	20 W
Standard operating wavelength <sup>1</sup>	1064 and 1083 nm				
Wavelength stability over 1 hour, +/- 1 °C	+/-15 MHz				
Wavelength thermal tuning range (option WT)	> 260 pm				
Laser frequency modulation range <sup>2</sup> (option FM)	200 MHz (at 7 kHz, input analog voltage 0 to 14 V)				
Laser frequency modulation bandwidth	DC to 20 kHz (input analog voltage 0 to 200 V, 200 V/ms max)				
Spectral linewidth <sup>3</sup>	< 70 kHz				
Relative intensity noise	<-105 dB/Hz @~100 KHz and <-140 dB/Hz @10 MHz				
Power stability (rms) over 1 hour	<1 %		<2 %		
Optical S/N ratio	>50 dB (+/- 1nm from central wavelength, 0.07 nm resolution)				
Output isolation	Yes				
Polarization	Random (RP) or Linear (LP, 17 dB PER)				
Seed Tap (option ST)	1 m long fiber, SMF for RP or PANDA for LP				
Output monitor and APC (option OM)	Internal photodiode and automatic power control mode				
Main output fiber type	1 m long fiber , SMF for RP or PANDA for LP				
Beam quality, M <sup>2</sup>	< 1.1				
Output termination	FC/APC, E2PS or C1			FC/APC, E2PS or C4	
Associated platform	B206		B301		

### Platform Specifications

	Platform type	
	B206	B301
Voltage	84 to 264 VAC (47 to 63 Hz)	
Control Interface	Front panel and RS232	
External laser frequency modulation	Analog voltage on rear panel	
Warm-up time	<15 min	
Dimensions	448x446x88 mm, 2U	448x446x133 mm, 3U
Weight	< 15 kg	< 20 kg
Operating case temperature	+15 °C to +35 °C	
Storage temperature	-20 °C to +55 °C	

<sup>1</sup>Other wavelengths available on special request

<sup>2</sup>External piezzo driver required

<sup>3</sup>Measured at -20 dB and fitted with Lorentzian model

### Ordering information

C Y F L - K I L O - - - - - W T - F M - S T - O M - - - - -

<b>Output power (W)</b>	<b>Polarization</b>	<b>Center Wavelength</b>	<b>Wavelength Tunability</b>	<b>Seed Tap</b>	<b>Output Monitor &amp; APC</b>	<b>Output termination</b>	<b>Platform</b>
0 1 1 W	R P Random polarization	1 0 6 4 1064 nm	1 Yes	1 Yes	1 Yes	F A FC/APC	B 2 0 6
0 5 5 W	L P Linear polarization	1 0 8 3 1083 nm	0 No	0 No	0 No	E 2 E2PS	B 3 0 1
1 0 10 W						C 1 Collimator 1	
1 5 15 W						C 4 Collimator 4	
2 0 20 W							