

# PYFL-KULT

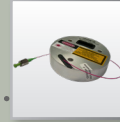
PULSED YTTERBIUM FIBER LASER

1.0  $\mu\text{m}$  ULTRA-COMPACT LASER TRANSMITTER



PK 50A/50D

PK 2A



1064 nm operating wavelength  
Energy per pulse up to 25  $\mu\text{J}$

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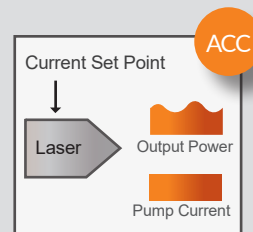
The PYFL-KULT series is a range of 1 $\mu\text{m}$  pulsed fiber laser transmitters, delivering high peak power and high energy per pulse in ultra-compact modules with diffraction-limited output beam for range finding applications. A varied choice of models offers the possibility to operate over a wide range of operating setpoints (pulse duration, pulse repetition frequency and energy) allowing to be suitable for a various of high-accuracy systems. Compact pulsed laser transmitters are commonly used in applications such as 3D scanning, mapping, telemetry, and also harmonic and supercontinuum generation.

The compact platforms allow an easy integration in highly integrated systems. The all-in-fiber design requires no maintenance. The PYFL-KULT has been tested under vibrations and shocks conditions in accordance with military standards (MIL-STD-810G, RTCA-DO-160G...) allowing operations in the harshest environmental conditions over a long period of time.

Lumibird electronic board designs offer a wide range of functionalities. The control of the PYFL-KULT can be analogic or digital. Platforms incorporate a microcontroller for internal controls, alarms, and RS232/USB communication making the laser compatible all systems. Pulses are triggered by an external signal supplied by the user system.

## Modes of operation

The devices offer one mode of operation :



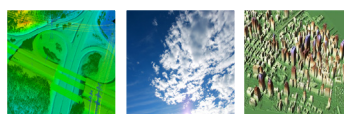
ACC (Automatic Current Control) mode is standard for all devices. The laser is controlled from diodes current set point.

## Key features

- 1064 nm operating wavelength
- Energy per pulse up to 25  $\mu\text{J}$
- Peak power up to 25 kW
- Pulse duration 1 ns to 3 ns
- Pulse repetition frequency from 5 kHz to 1 MHz
- Continuous or burst operation
- Linear or random polarization
- Diffraction limited output beam
- Low power consumption
- Wide operating temperature range (-35  $^{\circ}\text{C}$  to +65  $^{\circ}\text{C}$ )
- Compact and rugged module

## What applications

- Supercontinuum generation
- Harmonic generation
- Telemetry
- Range-finding
- 3D scanning
- Mapping



# PYFL-KULT

PULSED YTTERBIUM FIBER LASER

1.0  $\mu\text{m}$  ULTRA-COMPACT LASER TRANSMITTER



## Optical Specifications @ 25 °C

## PYFL-KULT

	PYFL-KULT
Mode of operation	Pulsed
Operating wavelength	1064 +/-2 nm
Wavelength excursion over T range	<0.3 nm
Energy per pulse (EPP)	Up to 25 $\mu\text{J}$
Peak power (PP)	Up to 25 kW
Average power (AP)	Up to 2W
Pulse repetition frequency (PRF)	From 5 kHz to 1 MHz
Pulse duration (FWHM)	From 1 to 3 ns
Seed tap (option)	1 m pigtail length, > 0.1mW peak power, SMF, FC/APC
Pigtail length	32 +/-2 cm
Fiber type	SMF / PANDA / LMA / LMA PANDA
Polarization	Random or Linear
Beam quality, $M^2$	1.1 to 1.3
Output termination	FC/APC or Collimator

The PYFL-KULT is available as OEM module for an easy integration.

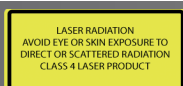
### RELIABILITY

The Lumibird 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 9001:2015 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)



Lumibird undertakes a continuous and intensive product development program to ensure that its products perform to then highest technical standards. As a result, the specifications in this document are subject to change without notice.

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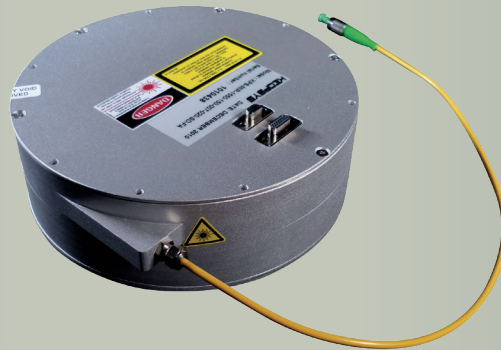
# PYFL-MIRVISION

PULSED YTTERBIUM FIBER LASER

1.0  $\mu\text{m}$  HIGH POWER LASER TRANSMITTER



1.0  $\mu\text{m}$



PM 2D / PM 3D

Energy per pulse up to 100  $\mu\text{J}$ ,  
Peak power up to 25 kW,

...

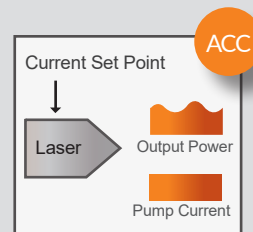
The PYFL-MIRVISION series is a range of 1 $\mu\text{m}$  pulsed fiber laser transmitters, delivering high peak power and high energy per pulse in compact modules for long-range applications. A varied choice of models offers the possibility to operate over a wide range of operating setpoints (pulse duration, pulse repetition frequency and energy) allowing to be suitable for a various of high-accuracy systems. Compact pulsed laser transmitters are commonly used in applications such as Airborne 3D scanning and mapping, telemetry, and also harmonic and supercontinuum generation.

The all-in-fiber design requires no maintenance. The PYFL-MIRVISION has been tested under vibrations and shocks conditions in accordance with military standards (MIL-STD-810G, RTCA-DO-160G...) allowing operations in the harshest environmental conditions over a long period of time.

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## Modes of operation

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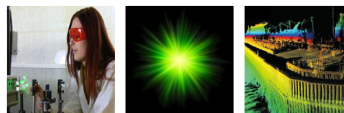
ACC (Automatic Current Control) mode is standard for all devices. The laser is controlled from diodes current set point.

## Key features

- Energy per pulse up to 100  $\mu\text{J}$
- Peak power up to 25 kW
- Choice of pulse duration from 1 ns to 4 ns
- Pulse repetition frequency from 50 kHz to 1 MHz
- Linear or random polarization
- High output-beam quality
- Low power consumption
- Wide operating temperature range (-35  $^{\circ}\text{C}$  to +65  $^{\circ}\text{C}$ )
- Rugged and compact package

## What applications

- Telemetry,
- Range-finding / Obstacle detection
- Airborne survey
- Mapping / 3D scanning
- Harmonic generation
- Bathymetry



# PYFL-MIRVISION

PULSED YTTERBIUM FIBER LASER  
1.0 μm HIGH POWER LASER TRANSMITTER



## Optical Specifications @ 25 °C

## PYFL-MIRVISION

PYFL-MIRVISION	
Mode of operation	Pulsed
Operating wavelength	1064 +/-2 nm
Wavelength excursion over T range	<0.3 nm
Energy per pulse	Up to 100 μJ
Peak power	Up to 25 kW
Average power	Up to 10 W
Pulse repetition frequency	From 50 kHz to 1 MHz
Pulse duration (FWHM)	From 1 to 4 ns
Fiber type	LMA / LMA PANDA (20 μm, 0.08 NA)
Polarization	Random or Linear
Beam quality, M <sup>2</sup>	<1.3
Output termination	FC/APC or Collimator
Seed tap (option)	1 m pigtail length, > 0.1mW peak power, SMF, FC/APC

The PYFL-MIRVISION lasers are available as OEM module for an easy integration

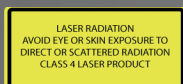
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# PYFL-PICO

Pulsed Ytterbium Fiber Laser  
1  $\mu\text{m}$  picosecond pulses



## MAIN FEATURES

- 1064 nm operating wavelength
- 100 MHz pulse repetition frequency
- 50 ps typical pulse duration
- Linear polarization
- Diffraction-limited beam

## MAIN APPLICATIONS

- **SEED LASER FOR HIGH ENERGY AMPLIFIER**
- **MATERIAL PROCESSING**
- **CONFOCAL MICROSCOPY**
- **RAMAN SPECTROSCOPY**

“

The PYFL-PICO is a picosecond pulsed Ytterbium fiber laser operating at 1064 nm, with a 100 MHz pulse repetition frequency and  $\sim 50$  ps pulse length. The laser can be used as a seeder for high-energy amplifiers in applications such as material processing. The compact laser module can also be integrated into confocal microscopy and Raman spectroscopy systems.

The 10  $\mu\text{m}$  LMA output fiber provides a diffraction-limited beam with excellent beam quality  $M^2 < 1.1$  perfectly suited for these applications. For a quick setup, the short-pulse laser is delivered with an interface cable and easy to use control software.

The module incorporates a microcontroller, for internal control and alarms, with RS232 communication making this laser widely compatible. The all-in-fiber design requires no maintenance.

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[www.keopsys.com](http://www.keopsys.com)

Many options and configurations are available. Please contact Lumibird to find the best match for your needs and compatibility between options.

# PYFL-PICO

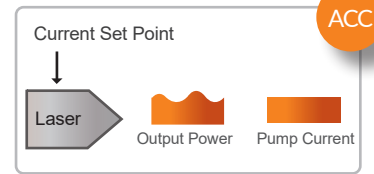
Pulsed Ytterbium Fiber Laser  
1  $\mu\text{m}$  picosecond pulses



## SPECIFICATIONS

	P01
Mode of operation	Pulsed
Operating wavelength (nm)	1064
Pulse duration (FWHM, ps)	50
Energy per pulse (nJ)	10
Peak power (kW)	0.2
Pulse repetition frequency (MHz)	100
Average power (W)	1
Polarization	Linear
Output fiber type	PANDA LMA 10 $\mu\text{m}$
Output termination	FC/APC
Beam quality, $M^2$	< 1.1

## Mode of operation



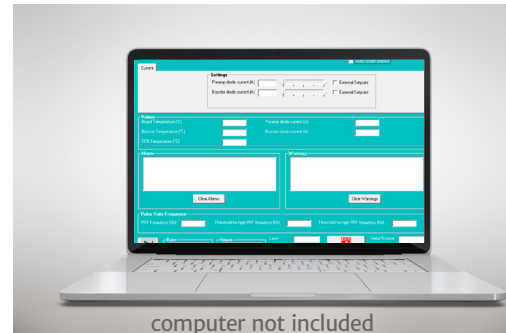
ACC (Automatic Current Control)

## EASY TO INTEGRATE !



### Interface cables

Cables are delivered with the product to allow easy evaluation



computer not included

### Remote control

- RS232 interface
- Serial command set provided for easy integration
- GUI available

## Reliability

All our fiber lasers and fiber amplifiers are manufactured according to our ISO certified quality management system, which places the needs and values of customers and partners at the heart of our organization. Throughout the manufacturing process, our components and systems are subjected to rigorous tests and inspections, which guarantees their robustness and reliability in the most demanding environments. Countless units operate continuously without maintenance around the world. The ISO 9001 certificates can be downloaded from our website.



LASER RADIATION  
AVOID EYE OR SKIN EXPOSURE TO  
DIRECT OR SCATTERED RADIATION  
CLASS 4 LASER PRODUCT



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Many options and configurations are available. Please contact Lumibird to find the best match for your needs and compatibility between options.