SUPERK FIANIUM

Pulsed white light laser platform

EASY-TO-OPERATE TUNABLE LASER

Ideal for bioimaging and characterization of nano-materials

Built on the World's best-selling supercontinuum laser, the SuperK EXTREME, the SuperK FIANIUM has upgraded electronics and new fiber technology giving you improved performance and reliability. And now it is even easier to use.

The lasers deliver high brightness diffraction-limited light in the entire 390-2400 nm range. Add one of our filter solutions to convert it into an ultra-tunable laser.

Applications

- Microscopy
- Fluorescence
- Lifetime Imaging
- Optical Coherence Tomography
- Spectroscopy
- White light interferometry
- Hyperspectral imaging
- Plasmonics & meta materials

SUPERK FIANIUM

The future-proof choice for innovators

As a scientist, you may not know what you need tomorrow. Address the unexpected with the highly versatile SuperK FIANIUM.

The modular design makes it easy to upgrade features and performance to ensure that you are always prepared for the future.

Wide spectral coverage and high brightness

Our SuperK supercontinuum sources deliver a wide spectral output covering hundreds of nanometers while keeping the high brightness and mode quality known from single line lasers.

A maintenance-free lifetime of thousands of hours

The SuperK series is based on NKT Photonics' world-renowned Crystal Fibre technology that has reliably delivered supercontinuum to all fields for over 15 years.

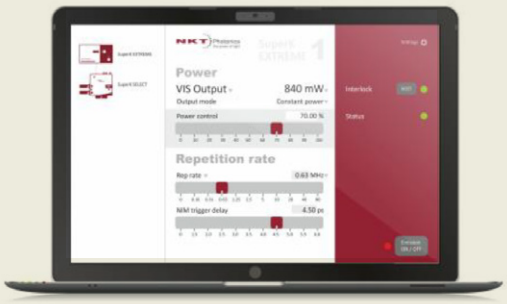
Our lasers are fully fiber monolithic which ensures excellent reliability and a lifetime of thousands of hours - as well as maintenance-free and alignment-free operation. For scientific applications, we offer a 2-year warranty.

Easy to operate

Operating the SuperK FIANIUM is easy for users from any discipline, no laser expertise is needed. The SuperK CONTROL graphical user interface on your PC gives intuitive control of all functions in the laser.

The system is fully modular, allowing easy operation and service. Accessory modules can be added without configuration—all plug & play. Change a large number of parameters on-the-fly, without powering down the system.

Model	Cut-in >0.1 mW/nm	Visible power (350-850 nm)	Total power
FIU-6	390 nm	0.6 W	2.2 W
FIU-15	410 nm	1.5 W	5.5 W
FIR-20	475 nm	2.0 W	6.5 W



Software — NKT Photonics CONTROL

Like other NKT Photonics lasers, the SuperK FIANIUM can be controlled by our intuitive CONTROL software that gives easy access to all laser functions.

The software automatically detects all units attached to the computer. You can control the source and any filtering accessories from CONTROL. It is easy to use and supports touch input as well as traditional mouse+keybord control.

OPTIONS

Variable Repetition Rate (Pulse Picker)

The pulse picker option allows the repetition rate of the SuperK FIANIUM to be easily changed on-the-fly while the system is running at full output.

Repetition rates of 0.15-78 MHz are available as standard, giving the user ultimate choice for lifetime measurement applications such as FLIM.

The electrical output trigger signal can be delayed up to 9.2 ns in steps of 15 ps. This enables trigger delay optimization without the need for a delay box. The trigger is adjustable from the front panel.

Repetition rate (fixed) [1]	78 MHz
Variable repetition rate (optional) [1]	0.15 - 78 MHz
Pulse suppression ratio	> 1:10,000
Repetition rate switching time	< 1 s
Trigger out signals	NIM, logic, analogue
Trigger signal jitter	< 20 ps
Adjustable trigger delay [2]	Up to 9.2 ns
Adjustable trigger delay resolution	15 ps

1) Can be modified upon request.
2) The electrical output trigger signal can be delayed up to 9.2 ns in steps of 15 ps.

Support and warranty

SuperK warranty
All SuperK FIANIUM products come with industry-leading reliability and are backed by our 2-year warranty for scientific applications.

Lifetime and service
Before shipping, all our SuperK lasers undergo an extensive burn-in to ensure performance and conformity to specifications.

Our systems boast over 10,000 hours of continuous lifetime and underlines the high reliability of our NKT Photonics Crystal Fibre technology.

Maintenance-free in the entire lifetime
A SuperK laser is completely maintenance-free in the entire lifetime.

SPECIFICATIONS

Optical

Model	FIU-6	FIU-15	FIR-20
Repetition rate [MHz]	78	78	78
Variable repetition rate [MHz] (optional)	0.15 - 78	0.15 - 78	0.15 - 78
Total visible power (350-850 nm) [W]	≈ 0.6	≈ 1.5	≈ 2.0
Total power [W]	≈ 2.2	≈ 5.5	≈ 6.5
Visible power stability [%] [1]	± 0.5	± 0.5	± 0.5
Cut-in wavelength (>0.1 mW/nm) [nm]	390	410	475
Polarization	Random	Random	Random
Beam quality	$M^2 < 1.1$	$M^2 < 1.1$ [2]	$M^2 < 1.1$
Beam diameter [mm]		≈ 1 @ 532 nm ≈ 2 @ 1100 nm ≈ 3 @ 2000 nm	
Beam pointing accuracy [mrad] [3]		< 1	

1) Average of a 2-hour measurement of the visible spectrum. The note stability per filtered line may vary with wavelengths.
2) For >450 nm.
3) Measured relative to the mechanical axis running through the center of the collimator.

Electrical/Environmental/Mechanical

Computer interface	USB 2.0/RS-232/Ethernet
Operation voltage [Hz]	100-240 VAC 50/60
Power consumption [W]	< 100 (< 120 with pulse picker)
Door interlock connector [1]	2-pin LEMO
External bus interface [2]	16-pin sub-D
System cooling	Air-cooled
Length of output fiber [m]	1.5
Operation temperature [°C]	18 to 30
Storage temperature [°C]	-10 to 55
Dimensions (WxHxL) [mm]	440 x 251 x 400
Weight [kg]	18 (19 with pulse picker)

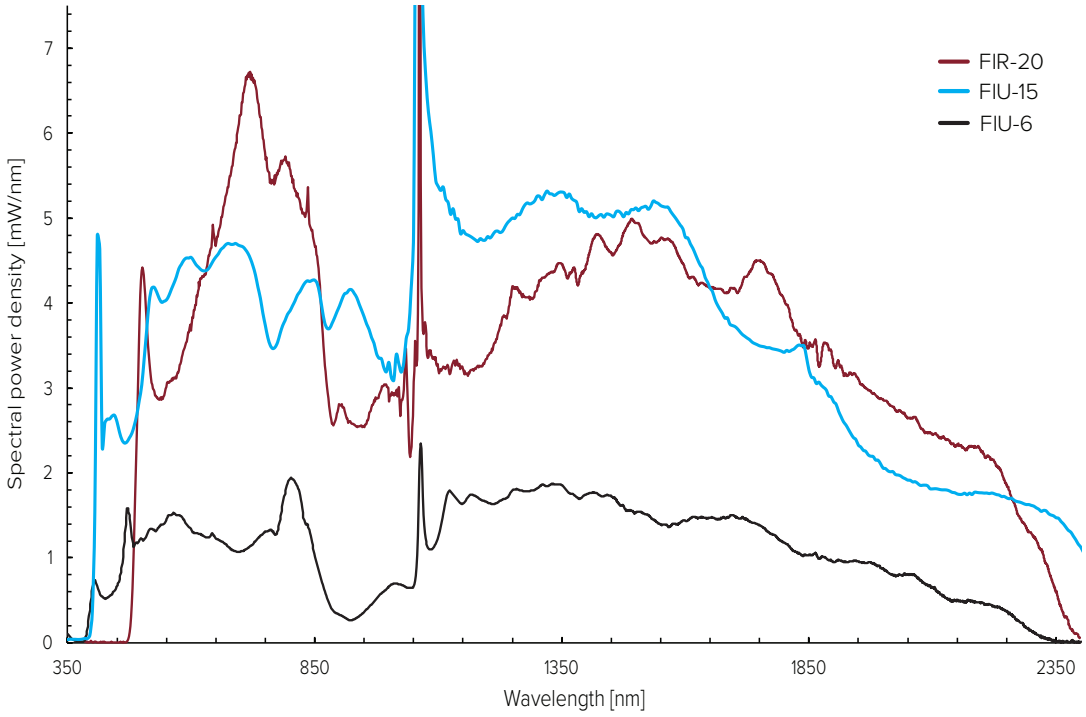
1) The SuperK FIANIUM is a Class 4 laser and is required to be connected to a door interlock/circuit
2) External communication and power supply port for accessories

Software Development Kit (SDK)

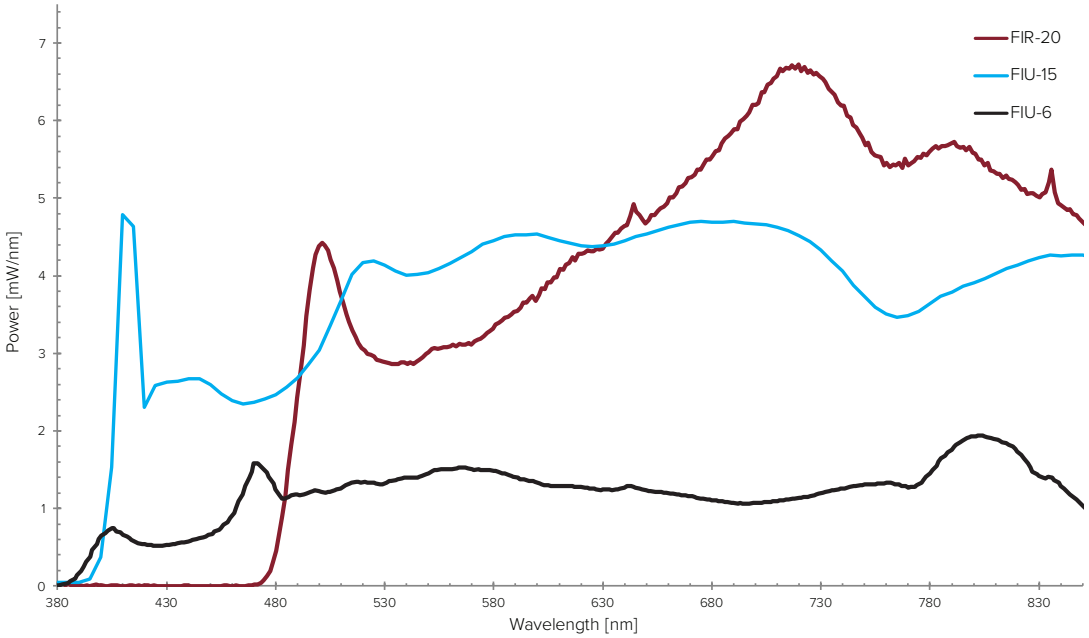
The free SuperK FIANIUM software development kit (SDK) enables control of the SuperK laser using third party software and hardware.

The SDK contains a full description of the communication protocols as well as LabView drivers and C++/C# source code.

SPECTRAL POWER DENSITY

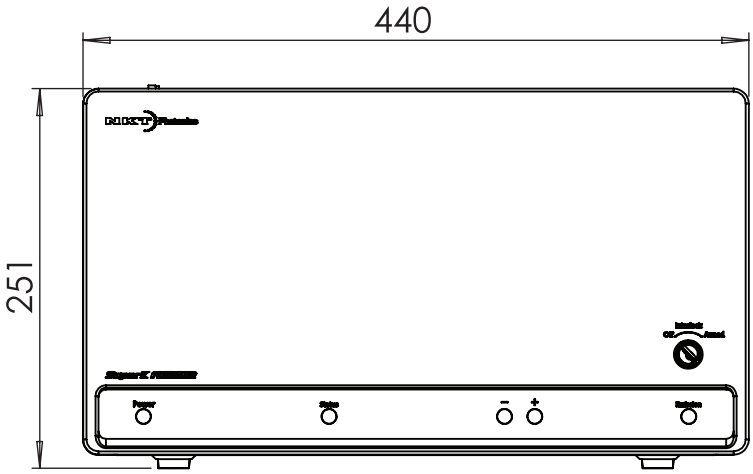


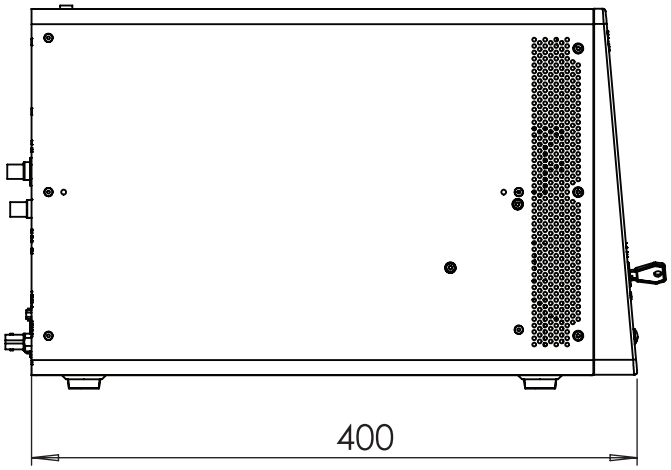
SPECTRAL COVERAGE

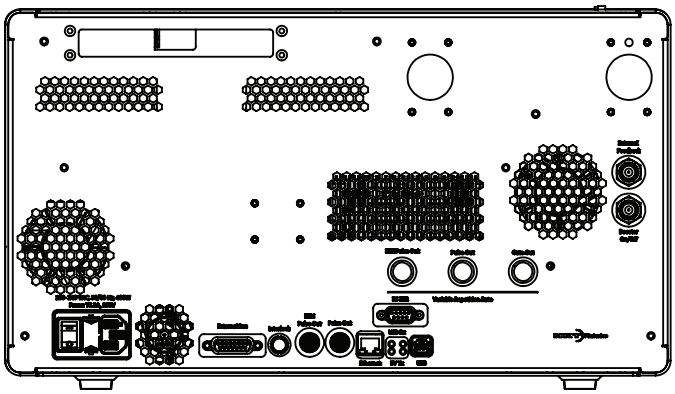


Visible power density curve of the high power lasers. Note: FIU-15's typical single mode fiber coupling efficiency is 70% above 450nm.

TECHNICAL DRAWINGS







All NKT Photonics products are produced under our quality management system certified in accordance with the ISO 9001:2015 standard.

FORCE Certification
Systemcertificering
DS/EN ISO 9001 - Kvalitet