Koheras BASIK

Ultra low noise OEM fiber laser

- Ultra low phase noise and narrow line-width
- Stable single frequency operation
- Industrial OEM packaging
- Designed for Multi-channel systems (ACOUSTIK) or stand-alone
- Integrated fast wavelength modulation (optional)

Applications

- Seismic sensing
- Sensor interferometry
- Motion and intrusion detection
- Laser vibrometry
- Metrology
- Atomic physics
- Frequency conversion
- Coherent communication
- Quantum physics

The Koheras BASIK is an industrial low noise fiber laser featuring ultra low phase noise and narrow linewidth normally only found in costly scientific systems. The fiber laser is very robust and can be easily integrated into multi-channel systems (please refer to the ACOUSTIK system).

The output power is up to 10-40 mW and the center wavelength can be chosen freely in the 1535-1580 nm range for the X15, E15 and C15 models or the 1030-1120 nm range for the Y10 model.

For easy control, the BASIK is available with an optional USB interface kit and can be controlled via NKTP CONTROL graphical user interface.

The BASIK laser is ideal for coherent sensor applications like security and asset monitoring and other applications e.g. within metrology that requires very low noise, high wavelength stability and stable single frequency operation.

Model	Standard Wavelength	Other wavelengths	Output power	PM	Fast modulation
X15	1550.12 nm	1535 - 1580 nm	30* mW	Yes	Yes
E15	1550.12 nm	1535 - 1580 nm	40 mW	Optional	Optional
C15	1550.12 nm	1535 - 1580 nm	>10 mW*	Optional	Optional
Y10	1064.00 nm	1030 - 1120 nm	> 10 mW*	Optional	Optional

*) Fixed output power (non adjustable).

Features and Options

Operating wavelengths and modulation

A key advantage of our DFB fiber laser technology is the freedom to choose the operating wavelength. Standard systems are available at 1550.12 nm and 1064.00 nm and we offer special systems anywhere in the 1535 to 1580 nm range and 1030-1120 nm range.

Furthermore, the laser offers a wide thermal tuning range, optionally combined with fast wavelength modulation e.g. for external stabilization.

Options

- Center wavelengths anywhere in 1535-1580 nm and 1030-1120 nm ranges
- PM output
- Fast wavelength modulation
- USB interface and power supply
- Optical monitor output

Service packages

- Koheras Care™ service and warranty package

Other laser models

Koheras ADJUSTIK Systems

This benchtop system is based on our industry-leading BASIK OEM laser modules and comes with integrated driver electronics and needs only 110/230 V power supply. The front panel controls ensures easy operation and the benchtop system is ideal for laboratory work and experimental research.

Koheras BOOSTIK

The BOOSTIK™ systems are narrow linewidth fiber laser turn-key benchtop systems based on a truly single mode, single frequency DFB (Distributed-Feedback) Fiber Laser with extremely high frequency stability and low phase and intensity noise.
The Koheras BOOSTIK System delivers up to 15 W at 1 µm and 10 W at 1.55 µm.

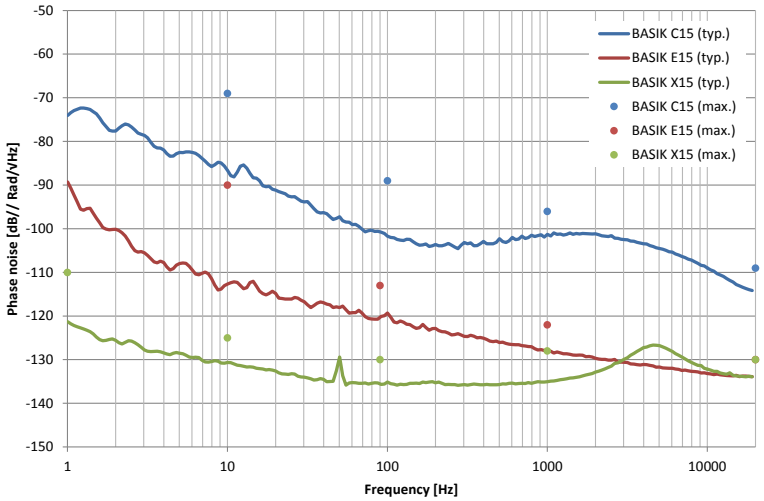
Fast wavelength modulation (Option)

The BASIK module can be supplied with easy and user friendly fast wavelength modulation. This feature is typically used to lock the laser to an external stable reference to obtain an even higher wavelength stability than provided by the free running laser.

Frequency noise

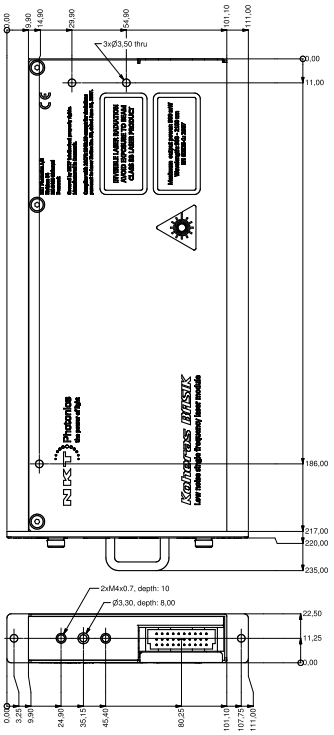
The BASIK laser features a very low frequency noise unprecedented in industrial OEM laser modules. The robust, single frequency operation and low noise makes the BASIK lasers a strong choice for coherent sensing where the ultra low frequency noise is a key laser parameter for the sensitivity and accuracy of a sensing system.

The plot below compares frequency and phase noise of a the different laser models. The lines show typical measurement results and the symbols indicate the guaranteed maximum values.



ACOUSTIK multi-channel integration

Need several wavelengths in one system? The BASIK module can be integrated into a multi-channel system using the ACOUSTIK integration rack that can hold up to 16 channels. The ACOUSTIK provides power and control to all modules for easy integration and channels can be added or changed as needed. For specifications please refer to the Koheras ACOUSTIK data sheet.



Specifications

Optical

Model	X15	E15	C15	Y10
Laser emission	CW - inherently single frequency			
Beam quality [M²]	< 1.05			
Linewidth [kHz] [1]	< 0.1		< 15	< 20
Max phase noise [dB(Rad/√Hz/m]	-110@1Hz -125@10Hz -130@100Hz -128@1kHz	-90@10Hz -110@100Hz -130@20kHz	-69@10Hz -89@100Hz -109@20kHz	-
Max phase-noise [µrad/√Hz/m]	3.1 @1Hz 0.6@10Hz 0.3@100Hz 0.4@1kHz	32@10Hz 3.2@100Hz 0.3@20kHz	355@10Hz 36@100Hz 3.5@20kHz	-
RIN peak [MHz]	app. 0.7		app. 1	app. 1.5
RIN level @ peak / 10 MHz [dBc/Hz]	<-100 / <-135		<-120 / <-140	<-105 / <-140
Optical S/N (50 pm res.) [dB]	> 50 (typ. > 55)		> 65 (typ > 70)	
Min thermal wave-length tuning range [pm] [2]	+/- 125	+/- 350		+/- 240
Total thermal tuning range [pm]	350	1000		680
Options:				
Fast wavelength modu-lation range [GHz]	0.6	8		10
Fast wavelength modu-lation [kHz]	Up to 20			
PM output - PER [dB]	> 23			
Monitor optical	FC/APC			

1. Lorentzian.
2. Relative to center wavelength at room temperature. If the laser is operated in very cold or hot environments, this wavelength range is truncated on either the upper or lower side.

Mechanical/Electrical/Environmental

Power supply requirements [VDC]	12
Power consumption [W]	Typical 4, max 12
Electrical interface	30 pin DIN41612 male
Fast modulation drive voltage	Differential 2x5V with common-mode voltage at 2.5V
Connectors	Standard: FC/APC pigtailed Option: Bulkhead/pigtailed FC/APC, SC/APC
Monitor output	Optional
Dimensions (HxWxD) [mm]	22.5x91.2(111)x220
Weight [kg]	0.6
Operating temperature range [°C] (module case temperature)	10 - 60 (E15, C15, Y10) 15 - 60 (X15)
Humidity non condensing [%RH]	0-70

All NKT Photonics products are produced under our quality management system certified in accordance with the ISO 9001:2008 standard.

FORCE Certification
Certification of Management Systems DS/EN ISO 9001 Quality

INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS 3B LASER PRODUCT

Koheras Care

Service and warranty extensions

The Koheras Care warranty and service package ensures trouble free operation of your Koheras laser.
The Standard Package gives you a two year warranty extension plus remote diagnostics of key laser parameters through an internet connection to the system. Our Premium Package adds a guarantee that we always stock a laser with your specifications - ready to ship should you need it.

Standard package
- Extension of warranty period to 2 years
- Remote diagnostics
- Preventive laser health checks

Premium package
- All the benefits of the standard package
- Pre-produced laser with specific customer specifications in stock

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