

# Koheras ADJUSTIK

Low noise, single frequency fiber laser benchtop systems

- Industry leading low phase noise
- Extremely narrow linewidth
- Stable single frequency operation
- Wide thermal wavelength tuning
- Integrated fast wavelength modulation
- Easy-to-use benchtop system
- PM output



## Applications

- Laser interferometry
- Acoustic detection
- Laser vibrometry
- Coherent communication
- Microwave generation
- Laser spectroscopy
- Wavelength references
- Atomic trapping

The Koheras ADJUSTIK is a low noise system featuring very low phase noise and narrow linewidth normally only found in costly scientific systems. The ADJUSTIK is a benchtop single frequency DFB fiber laser based on our renowned BASIK modules.

The output power is up to 40 mW and the center wavelength can be chosen freely in the 1535-1580 nm range (e.g. on the ITU grid) or 1030-1120 nm range. For easy control, the ADJUSTIK is equipped with USB and Ethernet connections and can alternatively be controlled by computer.

The ADJUSTIK is ideal for experimental work for all kinds of low noise applications e.g. for metrology and coherent sensing where laser noise is critical.

Model	Standard Wavelength	Other wavelengths	Output power	PM	Fast modulation
X15	1550.12 nm	1535 - 1580 nm	22.5 mW	Yes	Yes
E15	1550.12 nm	1535 - 1580 nm	40 mW	Yes	Yes
Y10	1064.00 nm	1030 - 1120 nm	> 10 mW	Yes	Yes

## 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 custom systems anywhere in the 1535 to 1580 nm range and 1030-1120 nm range.

Furthermore, the laser offers a wide thermal tuning range combined with fast wavelength modulation for e.g. external stabilization to obtain even a higher level of frequency stability than provided by the free-running laser.



## Options

- Center wavelengths anywhere in 1535-1580 nm and 1030-1120 nm ranges

## Service packages

- Koheras Care™ service and warranty package



## Other 1.5 μm models

### Koheras BASIK

Our compact industrial OEM module. It is also the building block of the other systems. It is supplied with CONTROL software for the control and read-out of laser parameters on a pc such as wavelength and output power.



### 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.

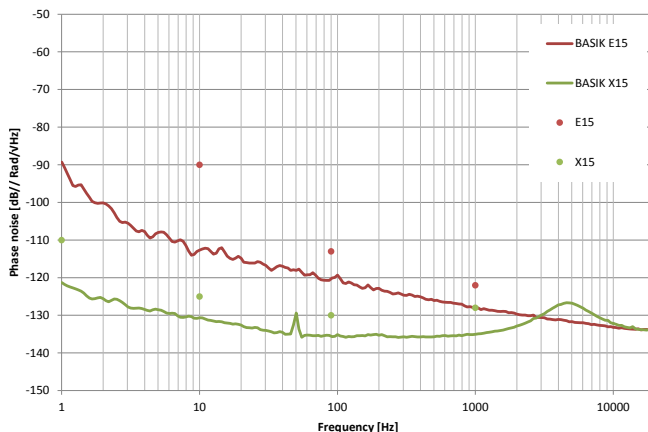


## Fast wavelength modulation

The ADJUSTIK system is 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.

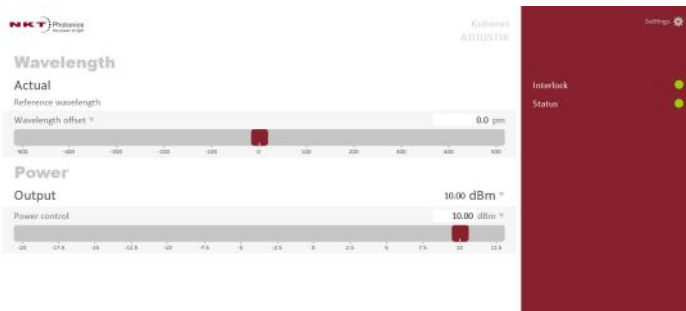
## Frequency noise

The ADJUSTIK features a very low frequency noise unprecedented in systems of this type. The low noise and robust single frequency operation makes the ADJUSTIK laser a strong choice for the coherent sensing industry, as well as for metrology applications. In sensing systems, the low frequency noise is key to obtaining high sensitivity and accuracy. The plot below shows a phase noise comparison of a ADJUSTIK E15 and X15. The lines show typical measurement results and the symbols indicate the guaranteed maximum values.



## Software CONTROL

All aspects of the ADJUSTIK can be controlled from our unified laser control software, NKTP CONTROL. The software offers an easy-to-use interface that works equally well on touch-enabled devices as with traditional mouse+keyboard setups. NKTP CONTROL can be used with several lasers connected simultaneously, and can even control a mix of different Koheras lasers such as ADJUSTIK, ACOUSTIK and BASIK.



# Specifications

## Optical

Model	X15	E15	Y10
Laser emission	CW - inherently single frequency		
Beam quality [M <sup>2</sup> ]	< 1.05		
Linewidth [kHz] <sup>1</sup>	< 0.1		< 20
Max phase noise [dB(Rad/√Hz/m)]	-110@1Hz -125@10Hz -130@100Hz -128@1kHz	-90@10Hz -110@100Hz -130@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	-
RIN peak [MHz]	app. 0.3		app. 1.5
RIN level @ peak / 10 MHz [dBc/Hz]	<-100 / <-135		<-105 / <-140
Optical S/N (50 pm res.) [dB]	> 50 (typ. > 55)		> 65 (typ > 70)
Min thermal wave-length tuning range [pm] <sup>2</sup>	+/- 350	+/- 350	+/- 240
Total thermal tuning range [pm]	1000	1000	700
Fast wavelength modulation range [GHz]	0.6	8	10
Fast wavelength modulation [kHz]	Up to 20		
PM output - PER [dB]	> 23		

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

Power supply requirements [VAC]	100-240, 50-60 Hz
Digital interface	USB 2.0, Ethernet 10/100
Amplitude and frequency modulation	DB9 (male), differential 2x5 V
Fiber output type	FC/APC
Fiber pigtail length [m]	App. 1
Monitor output	Yes (FC/APC bulkhead)
Dimensions (HxWxD) [mm]	49x447x386 (19" 1U)
Weight [kg]	App. 6

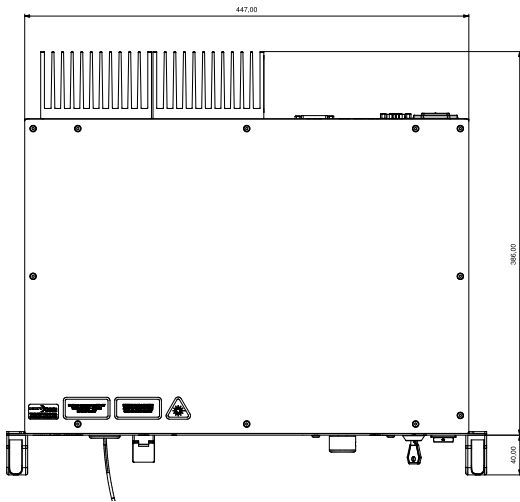
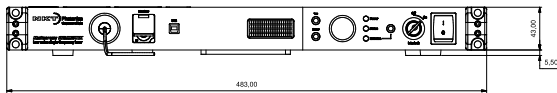
## Environmental

Operating temperature range [°C]	10 - 55 (system case temperature)
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.



Koheras\_ADJUSTIK\_160601



## 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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