# Koheras ADJUSTIK

## Low-noise, single-frequency fiber laser benchtop


## CHOOSE OPERATING WAVELENGTH

### Ideal for ultra-low noise applications

The Koheras ADJUSTIK is a low-noise system featuring the ultra-low phase noise and narrow linewidth normally only found in costly scientific systems.

The ADJUSTIK is a benchtop single-frequency distributed fiber laser based on our renowned BASIK modules.

### Applications

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

# KOHERAS ADJUSTIK

## High performance and low cost

The ADJUSTIK is an industrial fiber laser that gives you the best of two worlds:

The ultra-low phase noise and narrow linewidth from the scientific systems and the low cost and robustness from the industrial systems.

## Tunable center wavelength and output power

A key advantage of our distributed feedback 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 – 1580 nm range and 1030 – 1120 nm range.

Depending on the model, the output power is in the range of 10-40 mW.

## Thermal tuning and fast wavelength modulation

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

## Polarization-maintaining fiber output

The standard output is a polarization maintaining fiber to ensure a fixed orientation of the polarization. This may be required in case the laser output needs to be externally modulated or frequency converted.

## Ideal for low-noise applications

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.

## Features

- Center wavelengths in the 1535–1580 nm and 1030–1120 nm ranges
- Industry-leading low phase noise
- Extremely narrow linewidth
- Stable single-frequency operation
- Wide thermal wavelength tuning
- Integrated fast wavelength modulation
- Polalization-maintaining fiber output
- Easy-to-use benchtop system
- Graphical user interface
- Plug and Play
- Robust and maintenance-free

# FEATURES

### Easy to control via a graphical user interface

For easy control, the ADJUSTIK is available with a USB interface kit and can be controlled via our NKTP CONTROL graphical user interface.

### The market's lowest frequency noise

The ADJUSTIK laser features a very low frequency noise, unparalleled in industrial fiber lasers.

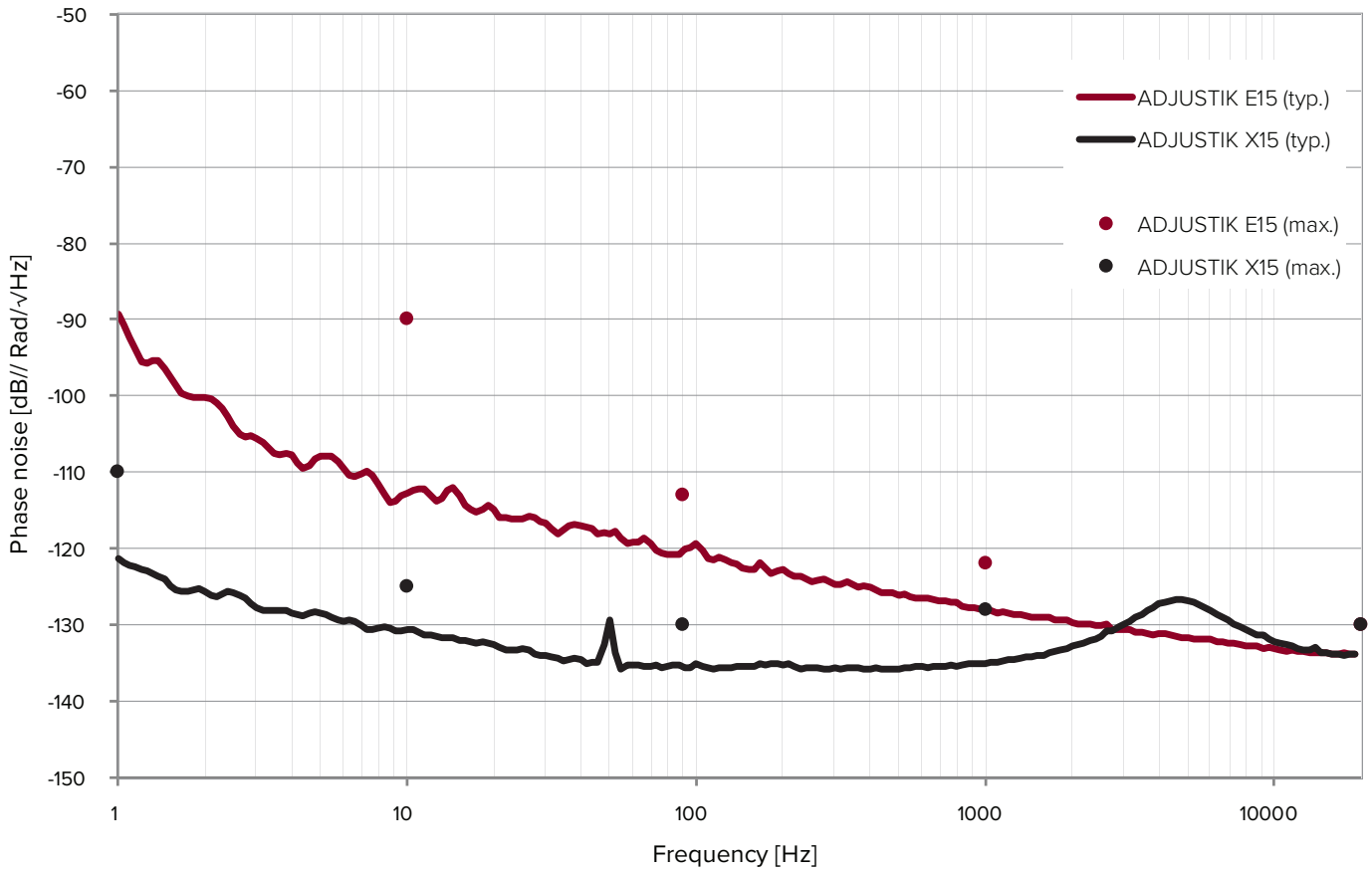
The low noise and robust single-frequency operation makes the ADJUSTIK laser a strong choice for the coherent sensing industry, as well as for metrology applications. In sensing systems, the low frequency noise is key to obtaining high sensitivity and accuracy.

The plot below shows a phase noise comparison of the ADJUSTIK E15 and X15. The lines show typical measurement results whereas he dots indicate the guaranteed maximum values.


### Software — NKT Photonics CONTROL

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

The software automatically detects all units attached to the computer. You can control several lasers simultaneously. It is easy to use and supports touch input as well as traditional mouse+keybord control.



# SPECIFICATIONS

## Optical

| Model | X15 | E15 | Y10 |
|---|---|---|---|
| Laser emission | Continuous wave - inherently single frequency | | |
| Beam quality | $M^2 < 1.05$ | $M^2 < 1.05$ | $M^2 < 1.05$ |
| Linewidth [kHz] [1] | < 0.1 | < 0.1 | < 20 |
| Max. phase noise [dB(rad/√Hz/m)] | -110 @ 1 Hz | - | - |
| | -125 @ 10 Hz | -90 @ 10 Hz | - |
| | -130 @ 100 Hz | -110 @ 100 Hz | - |
| | -128 @ 1 kHz | -130 @ 20 kHz | - |
| Max. phase noise [µrad/√Hz/m] | 3.1 @ 1 Hz | - | - |
| | 0.6 @ 10 Hz | 32 @ 10 Hz | - |
| | 0.3 @ 100 Hz | 3.2 @ 100 Hz | - |
| | 0.4 @ 1 kHz | 0.3 @ 20 kHz | - |
| RIN peak [MHz] | Appr. 0.7 | Appr. 0.7 | Appr. 1.5 |
| RIN level [dBc/Hz] | < -100 @ peak | < -100 @ peak | < -105 @ peak |
| | < -135 @ 10 MHz | < -135 @ 10 MHz | < -140 @ 10 MHz |
| Optical S/N (50 pm res.) [dB] | > 50 (typ. > 55) | > 50 (typ. > 55) | > 65 (typ. > 70) |
| Min. thermal wavelength tuning range [pm] [2] | ± 350 | ± 350 | ± 240 |
| Total thermal tuning range [pm] | 1000 | 1000 | 680 |
| Fast wavelength modulation range [GHz] | 0.6 | 8 | 10 |
| Fast wavelength modulation [kHz] | Up to 20 | Up to 20 | Up to 20 |
| PM output - PER [dB] | > 23 | > 23 | > 23 |

1) Lorenzian.
2) Relative to center wavelength at room temperature. If the laser case temperature is outside the interval of approximately 10-50 °C, the range of detuning from the center wavelength may be reduced.

# SPECIFICATIONS

## Mechanical/Electrical/Environmental

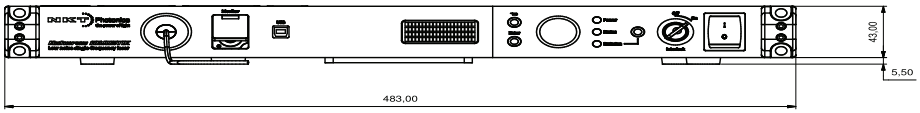
| | |
|---|---|
| Power supply requirements [VAC, Hz] | 100-240 VAC, 50-60 Hz |
| Digital interface | USB, Ethernet 10/100 |
| Amplitude and frequency modulation [V] | DB9 male, differential 2x5 |
| Connectors | Standard: FC/APC pigtail 1 m |
| Monitor output | Yes, FC/APC bulkhead |
| Operation temperature [°C] [1)] | 10 – 55 |
| Storage temperature [°C] | -20 – 60 |
| Dimensions (WxHxL) [mm$^3$] | 483 x 48.5 x 386 (19” 1U) |
| Weight [kg] | 6 |
| Humidity non-condensing [% RH] | 0 – 70 |

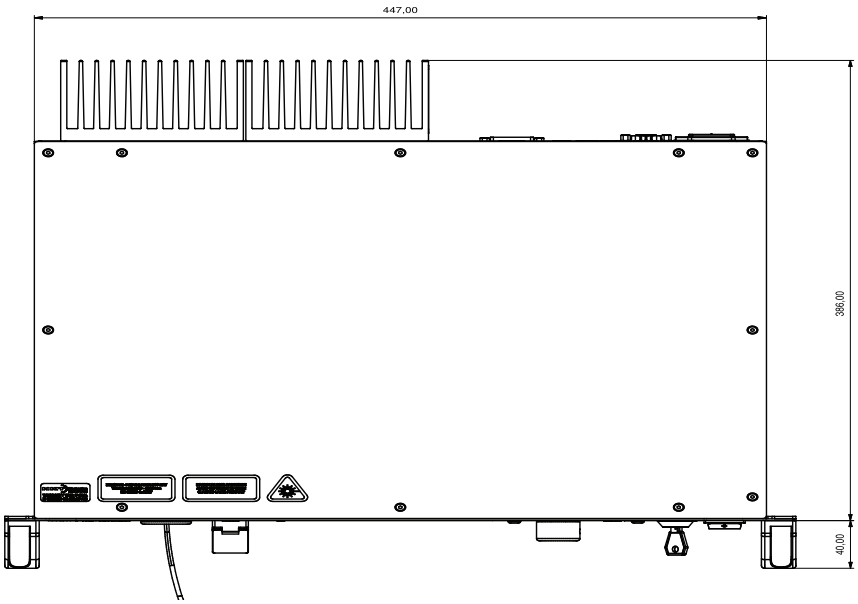
1) For other temperature options, please contact us.

## Reliability

The Koheras range of single frequency fiber lasers is based on telecom-grade fiber components and built to last thousands of hours with no service or maintenance.

With several thousand lasers installed in environments varying from fully climate controlled national standards laboratories to the demanding environment on oil rigs and submarines, the Koheras line is the most robust single-frequency laser range on the market with an unmatched reliability track record.




All Koheras 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