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.

### 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

<table>
<thead>
<tr>
<th>Model</th>
<th>X15</th>
<th>E15</th>
<th>C15</th>
<th>Y10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser emission</td>
<td>CW - inherently single frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beam quality ([M^2])</td>
<td>(&lt; 0.1)</td>
<td>(&lt; 1.05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linewidth ([kHz]) (^1)</td>
<td>(-110@1Hz) (-125@10Hz) (-130@100Hz) (-128@1kHz)</td>
<td>(-90@10Hz) (-110@100Hz) (-130@20kHz) (-109@20kHz)</td>
<td>(-69@10Hz)</td>
<td></td>
</tr>
<tr>
<td>Max phase noise ([dB(Rad/VHz/m)])</td>
<td>(3.1@1Hz) (0.6@10Hz) (0.3@100Hz) (0.4@1kHz)</td>
<td>(32@10Hz) (3.2@100Hz) (0.3@20kHz)</td>
<td>(355@10Hz) (36@100Hz) (3.5@20kHz)</td>
<td>-</td>
</tr>
<tr>
<td>RIN level @ peak / 10 MHz ([dBc/Hz])</td>
<td>(&lt;-100 / &lt;-135)</td>
<td>(&lt;-120 / &lt;-140)</td>
<td>(&lt;-105 / &lt;-140)</td>
<td></td>
</tr>
<tr>
<td>Optical S/N (50 pm res.) ([dB])</td>
<td>(&gt; 50) (typ. &gt; 55)</td>
<td></td>
<td>(&gt; 65) (typ &gt; 70)</td>
<td></td>
</tr>
</tbody>
</table>

Max phase-noise \([µrad/VHz/m]\) |

<table>
<thead>
<tr>
<th>Model</th>
<th>X15</th>
<th>E15</th>
<th>C15</th>
<th>Y10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min thermal wavelength tuning range ([pm]) (^2)</td>
<td>(+/- 125)</td>
<td>(+/- 350)</td>
<td>(+/- 240)</td>
<td></td>
</tr>
<tr>
<td>Total thermal tuning range ([pm])</td>
<td>(350)</td>
<td>(1000)</td>
<td>(680)</td>
<td></td>
</tr>
</tbody>
</table>

Options:

- Fast wavelength modulation range \([GHz]\) | 0.6 | 8 | 10 |
- Fast wavelength modulation \([kHz]\) | 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 |
- 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) |
- 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.