The Koheras BoostiK™ OEM module is an industrial single frequency DFB fiber laser module with active wavelength control and wide-range thermal wavelength tuning. It features ultra-narrow linewidth in the Hz range and exceptionally low frequency and intensity noise.

The module is based on our industry-leading BasiK™ OEM laser modules and has been designed for operation in harsh airborne or ground based environments such as LIDAR, wind sensing, and security featuring unique isolation to acoustic noise and vibrations.

The output power is 1 W and the center wavelength can be chosen freely in the 1535-1585 nm range (e.g. on the ITU grid).


For easy control of the BoostiK OEM module, an USB to RS485 interface adapter is available including control software with graphical user interface.

<table>
<thead>
<tr>
<th>Model</th>
<th>Wavelength</th>
<th>Output power</th>
<th>PM</th>
<th>Piezo tuning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>1565 nm</td>
<td>1.0 W</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Custom</td>
<td>1535 - 1585 nm</td>
<td>Up to 1.3 W*</td>
<td>Optional</td>
<td>No</td>
</tr>
</tbody>
</table>

* Depending on center wavelength of the laser.

Thermal Tuning

All Koheras fiber lasers are equipped with thermo electrical temperature controllers (TECs). The TECs not only stabilizes the operation of the laser desensitizing it to environmental temperature fluctuations, but also makes it possible to achieve considerable tuning of the center wavelength by changing the operating temperature of the laser. At standard room temperature (around 20-30°C or 68-86°F) the laser can be thermally tuned an industry leading 1000 pm. Approximately 350 pm above normal operation and 650 pm below. Please note, that if the laser is operated in very cold or hot environments close to the temperature limits, this tuning range is truncated on either the upper or lower side.
Options
- Linewidth reduction to 10 kHz (C15 model)
- Low phase noise E15 model
- Custom center wavelengths anywhere in 1535-1585 nm range
- USB to RS485 adapter

Service packages
- Koheras Care™ service and warranty package

Features and Options

PM output
Fixed state of polarization of the laser output with key and polarization aligned to the slow fiber axis.

Operating Wavelengths
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 we offer custom systems anywhere in the 1535 to 1585 nm range.

Relative Intensity Noise (RIN)
The BoostiK OEM features our unique RIN reduction technology and, consequently, features a RIN that is typically lower than –155 dBc/Hz.

Low Phase Noise Model (E15)
For applications requiring low phase noise, we offer the BoostiK OEM E15 module. The phase noise of the E15 model is approximately 20 dB lower than the C15 model with only a minor increase in RIN (see specification on next page).

GraphiK Software Control
The BoostiK OEM module can be controlled by our GraphiK software through an RS232 connection or by using the optional USB-to-RS485 adapter (the adapter must be ordered separately). The software gives access to all major module data such as temperature, wavelength and power control. Moreover, the software allows you to access the system log in the laser. The GraphiK control software can be downloaded for free at www.nktphotonics.com/software

Other 1.5 µm models

Koheras BasiK™ Modules
Our compact industrial OEM module. It is also the building block of the other systems. It is supplied with Koheras GraphiK™ software for the control and read-out of numerous laser parameters on a pc such as wavelength, output power, and RIN suppression.

Koheras BoostiK™ Systems
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 15W at 1 µm and 10 W at 1.55 µm.
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 AdjustiK 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

Specifications

Optical

<table>
<thead>
<tr>
<th>C15</th>
<th>E15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser emission</td>
<td>CW - inherently single frequency</td>
</tr>
<tr>
<td>Beam quality</td>
<td>$M^2 &lt; 1.05$</td>
</tr>
<tr>
<td>Line width (kHz)$^1$</td>
<td>$&lt;50$ kHz (optionally $&lt;10$)</td>
</tr>
<tr>
<td>RIN @ f=0.5 MHz</td>
<td>$\leq -145$ dBc/Hz</td>
</tr>
<tr>
<td>RIN @ f=1.0 MHz</td>
<td>$\leq -145$ dBc/Hz</td>
</tr>
<tr>
<td>RIN @ f=3.0 MHz</td>
<td>$\leq -155$ dBc/Hz</td>
</tr>
<tr>
<td>Optical S/N (dB) (50 pm res.)</td>
<td>$&gt; 65$ (typ. $&gt; 70$)$^2$</td>
</tr>
<tr>
<td>Thermal tuning</td>
<td>Standard</td>
</tr>
</tbody>
</table>

Total thermal tuning range [pm] 1000 (at room temperature)$^3$

1. Self heterodyne with optical delay of 120 µs
2. Depending on wavelength
3. If the laser is operated in very cold or hot environments, this tuning range is truncated on either the upper or lower side.

Mechanical/Electrical

- Power supply requirements [VDC] 11-13 V, 4 A
- Power consumption Typical 20 W, max 30 W
- Control connector IDC-16 (Digital PC interface)
- Fiber pigtail length [m] 0.5-0.7 m
- Connectors E2000 APC
- Dimensions, base plate (HxWxD) [mm] 282x194x5 mm
- Dimensions, heat sink (HxWxD) [mm] 2 x 175x40x40 mm incl. fans
- Dimensions, enclosure (HxWxD) [mm] 243x148x74 mm
- Weight [kg] ~3.8 kg, incl. heat sink

Environmental

- Operating temperature range [°C] 10 - 60 (module case temperature)
- Storage temperature range [°C] -20 - 60
- Humidity non condensing [%RH] 0-70
- Vibration [G @ 15-200 Hz] 0.2

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

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