

QUOTATION

NARROW LINEWIDTH HIGH POWER FIBER AMPLIFIER

QUOTATION NUMBER
2018-10-06

Prepared By



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Prepared for the California Institute of Technology

System Description

As part of the Photonic Circuit, The Optical Engines Model AE 100 NB consists of a dual use one and two stage amplifier schematically depicted in Figure 1.

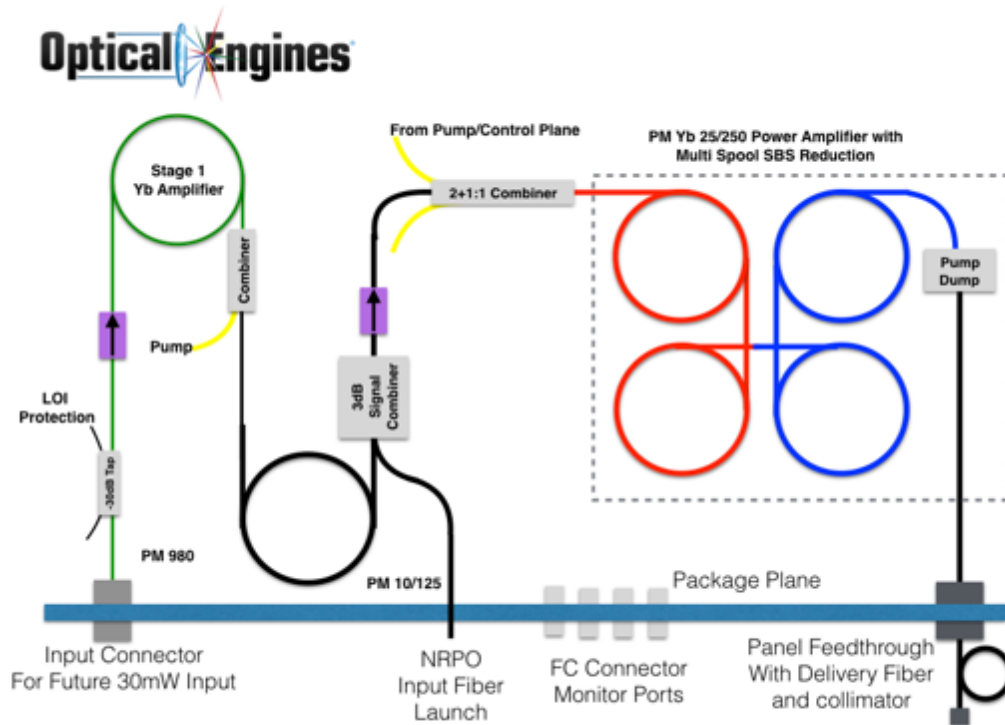


Figure 1 Optical Engines Model AE 100 NB Photonic layout schematic

The overall amplifier is contained in a 2 RU rack housing with a panel mounted P980 input fiber (bulkhead FCAPC or bare fiber). An input tap coupler provides forward Loss of Input (LOI) and SBS reverse protective shut off with a 2 μ s response time. This tap coupler input is split by 3dB and directed to FC connectors for additional monitoring. The first stage takes the 30mW input and boosts it to approximately 500mW. A 30dB isolator separates the two stages. Before the Isolator is a 3dB signal combiner that provides an input that bypasses the first stage for the injection of a higher power NPRO based source. The second stage is a PM Yb 25/250 gain fiber co pumped by one 100W wavelength stabilized pump diodes. The gain fiber is in a multi spool configuration to provide for SBS suppression. After the unabsorbed pump removal system the fiber is fed out of the unit to a collimation/ end cap assembly that can easily be mounted and interfaced to an external optical system.

Contained in the same rack mountable housing, the electronics assembly is schematically depicted in Figure 2.

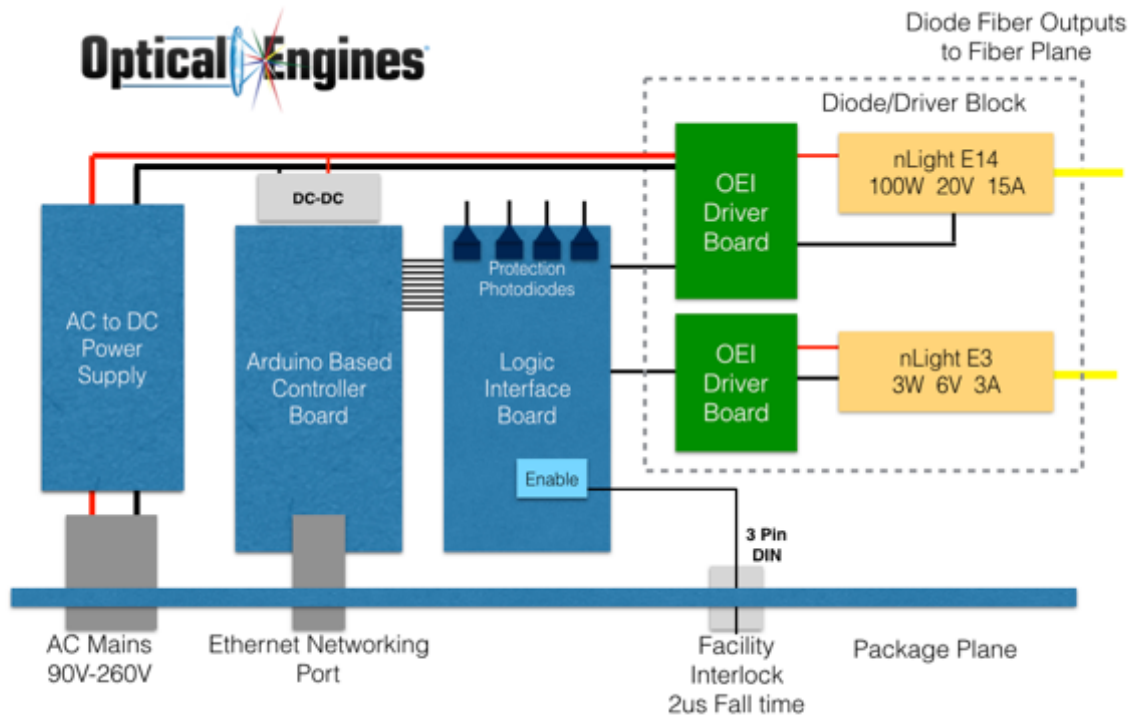


Figure 2. AE 100 NB Powering, control and communications plane

The unit is conveniently powered by AC mains and has Optical Engines proprietary control logic and high current driver. The two diodes are operated independently to provide full control of the amplifier. Analog, USB, and Ethernet communication modes are available. A facility interlock with a 2us response time is provided.

Optical Engines has provided fiber amplifiers, and multi kW direct diode systems for 4 years now to top tier companies in industrial, scientific and defense application areas., Our devices are known for their high reliability and high performance operation.

The powering, control and communications plane is directed through Optical Engines Power Drive control software. A typical GUI screen for such a device is shown in figure 3.

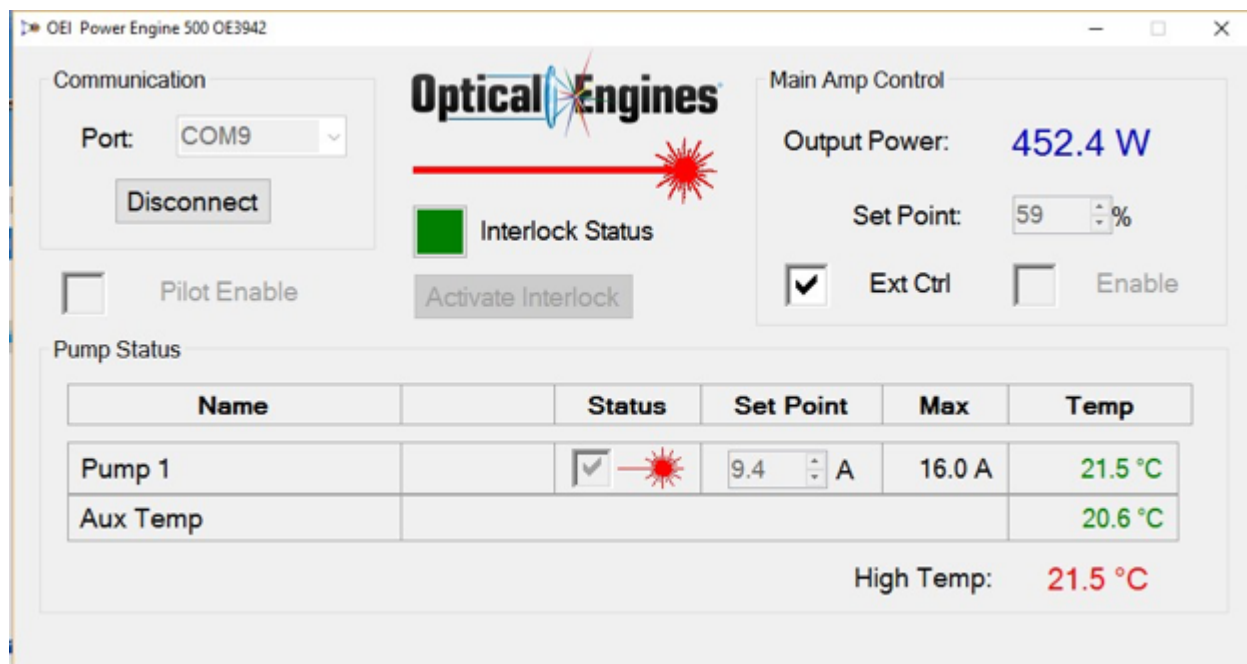


Figure 3. GUI Example for Optical Engines Power Drive control software.

This software is an easy to use control interface for controlling the pump input and monitoring internal temperature and power levels. A full command line structure is also available for placing the AE 100NB into a higher level system controller.

Figure 4 shows the basic mechanical layout of our direct diode and amplifier products showing the pump diodes, diode drivers, power supply, cooling plates and controller cards. These units are designed and built for the highest levels of performance, ease of operation and reliability.

The AE 100NB comes as a water cooled. Please specify which type is desired at the time of order placement.

The AE 100NB comes standard with a 1 year warranty. A detailed service manual is also provided as well as free video calls to assist in installation and operation.

This system description is for illustration purposes only. The exact internal configuration is subject to change to meet system specifications. All external connections are described accurately.

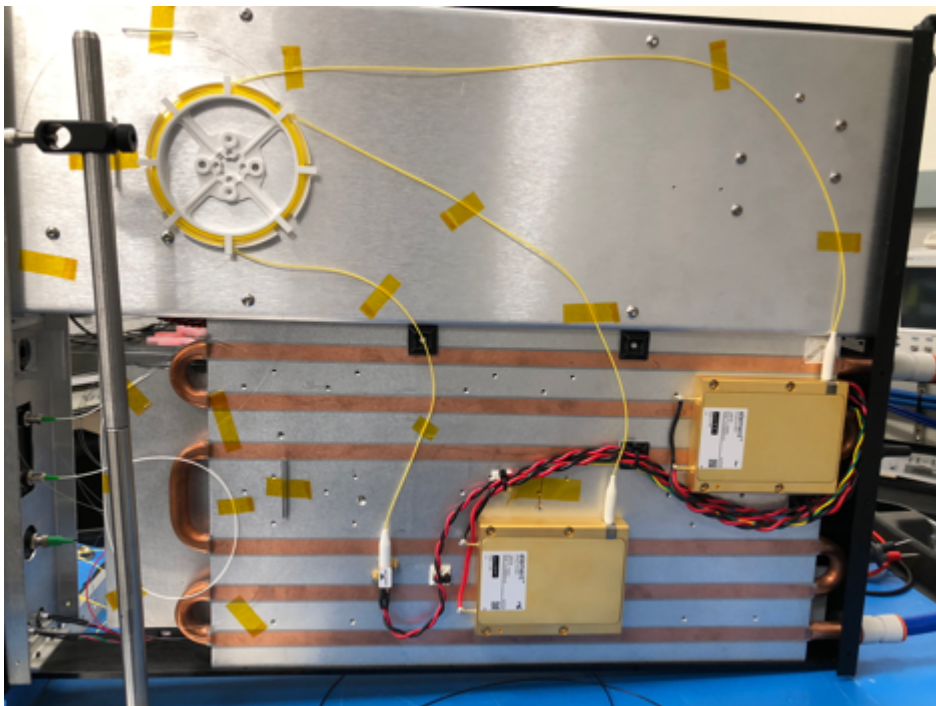


Figure 4. Typical AE 100 NB Photos

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Specifications

1. Amplifier Type	CW
2. Center wavelength	1064+/- 1nm
3. Linewidth of Operation	Hz to 10GHz
4. Minimum Output Power	30W
5. Minimum Input Power	10mW
6. Output power stability	< 3%
7. Polarization Extinction Ratio	>15dB
8. M2	< 1.1
9. Input fiber type	PM 980, PM 10/125
10. Output Collimation	User specified

1. Price. The price AE 100NB Amplifier with a 1 year warranty is \$54,000
2. An extra year of warranty can be purchased for \$2500
3. Delivery time : 16 Weeks ARO
4. Payment Terms : 30 days after receipt of product

Best regards,



Donald Sipes
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