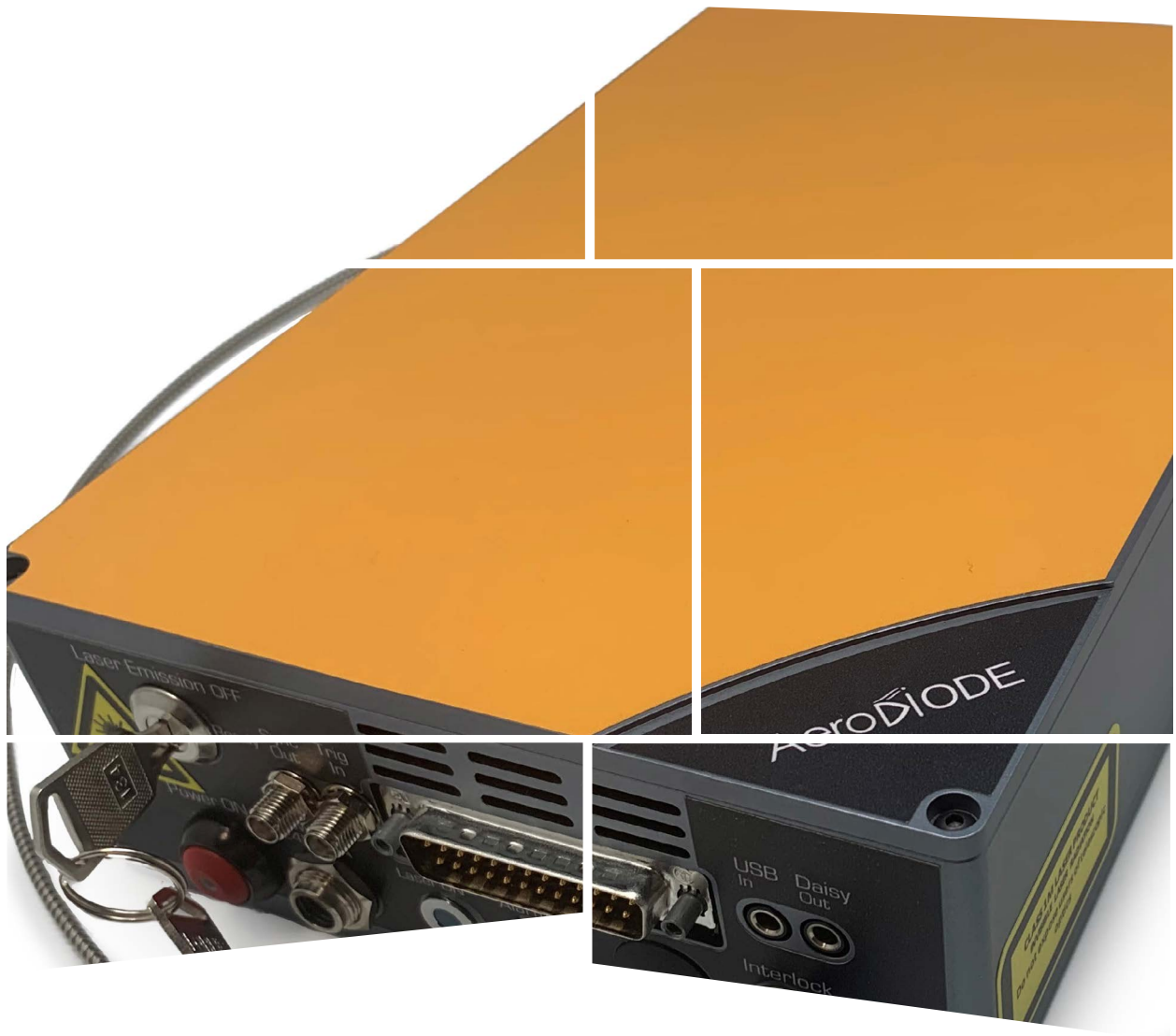


Centrale-I

Single frequency amplified laser source

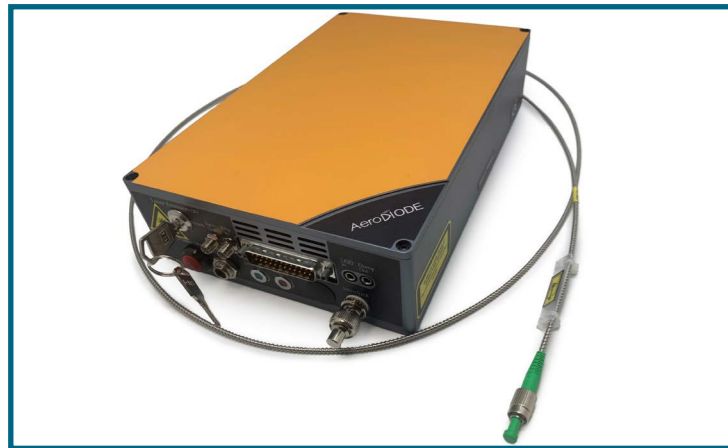


AeroDiODE

CENTRALE-I

Turnkey single-frequency high power laser

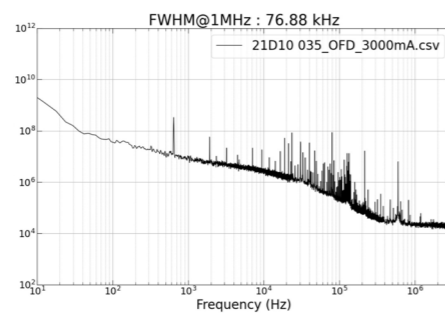
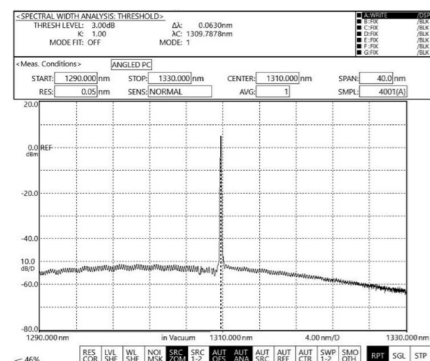
Single-frequency laser diode amplified by a SOA (Semiconductor Optical Amplifier). Complete turnkey solution between 780 and 1650 nm.



The AeroDIODE Centrale-I series comprises a low-noise, high-efficiency, single-mode laser diode and a solid-state optical amplifier (SOA) that amplifies the light emitted by this diode. The module offers either a standard-power solution (approximately 20 dBm) with some modulation capabilities in the 780-800 nm range, or a very high-power solution (typ. 950 mW / 29.8 dBm) in the O-band (around 1310 nm). Modulated or even short pulses solutions at other wavelengths are also available – see the dedicated page called «laser seeder with SOA modulation» for these versions.

Key features:

- New generation ultra-high power SOA/BOAs allowing unprecedented power levels to be achieved in a completely reliable manner.
- Many wavelengths are available : 780, 785, 795, 1270, 1290, 1310 and 1330 nm. Contact AeroDIODE for other wavelengths.
- The amplified output lights keeps the narrow spectral performance of the seeder DFB laser diode in CW or even in pulse mode if needed (down to the ~ sub MHz linewidth range)
- Max power up to 100 mW around 780 nm or up to 1000 mW in the O-band (around 1310 nm).
- Laser diode monitor and optional output monitor photodiode.
- PM Fibers (key aligned to slow axis) - Compatible with SMF fiber systems - possibility to request an SMF fiber.
- All software integration libraries are included on demand : LabVIEW, Python (Linux compatible), DLLs, Hexa etc.
- The GUI software is included. Optional dedicated GUI touchscreen with Ethernet remote control.
- «Computer-less» starting mode for OEM integration.



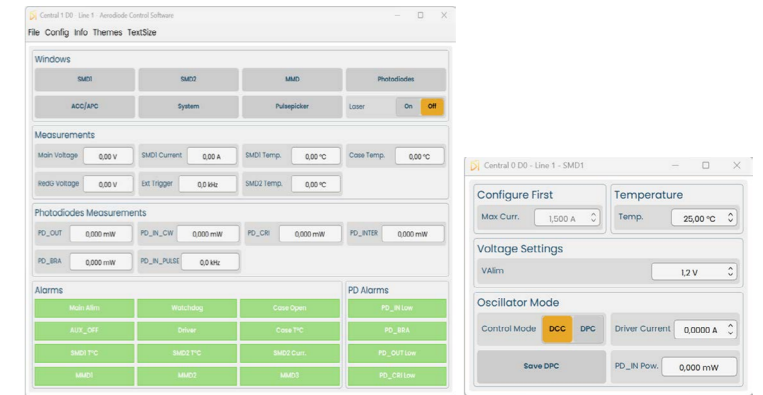
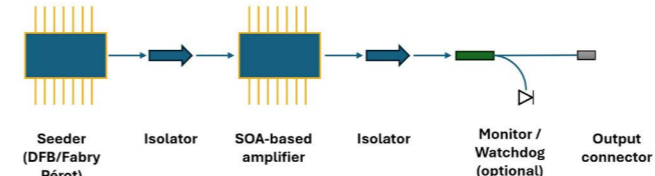
Single frequency OSA spectrum at 1310 nm from the sampled 1W light beam. The narrow frequency (sub-MHz) cannot be measured this way due to the OSA resolution but the SMSR is measured between 55 and 60 dB

Amplified beam phase noise curve allowing to estimate the instantaneous linewidth in the 100 kHz range after amplification. The linewidth measured with the self-heterodyne method is more in the 500 kHz range.

All AeroDIODE products are supplied with a global GUI software and can therefore be simultaneously controlled using any windows laptop. This option adds an additional touch screen to control one or more AeroDIODE products locally. It also acts as an Ethernet relay for remote control

Technical description and specifications

Electronics for integration, supervision, alarms, interlock, power adjustment, temperature control, software controls, etc.



The product combines a special fiber coupled DFB laser diode and a special SOA with a dedicated electronics to drive both items. The table and configuration choice below is indicative - contact us to build your own Centrale-I turnkey single frequency laser source.

A dedicated GUI allows to control all CW or eventually pulsed parameters.

Centrale-I modules performances (examples*):

Nominal Wavelength*	780 nm, 785 nm or 795 nm		1270 nm		1290 nm		1310 nm		1330 nm	
	CW Power level (typical)	[std] 65mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW	[std] 200mW [HP] 950 mW
Peak Power level	160mW	500mW -	500mW -	500mW -	500mW -	500mW -	500mW -	500mW -	500mW -	
Laser Diode seeder	DFB	DFB	DFB	DFB	DFB	DFB	DFB	DFB	DFB	
Typical laser diode emission	< 1 MHz	< 1 MHz	< 1 MHz	< 1 MHz	< 1 MHz	< 1 MHz	< 1 MHz	< 1 MHz	< 1 MHz	
CW/Pulse modes	CW & Pulse	CW & Pulse CW only	CW & Pulse CW only	CW & Pulse CW only	CW & Pulse CW only	CW & Pulse CW only	CW & Pulse CW only	CW & Pulse CW only	CW & Pulse CW only	
PER (minimum / typical)	15 dB / 20 dB	20 dB / 25 dB	20 dB / 25 dB	20 dB / 25 dB	20 dB / 25 dB	20 dB / 25 dB	20 dB / 25 dB	20 dB / 25 dB	20 dB / 25 dB	
Output Fiber : type / coating	PM780 / Metal protected >3 mm / FC-APC	PM1310 / Metal protected >3 mm / FC-APC								
Laser diode temperature /	15-50 °C / 15-50°C									
Interface / GUI / Libraries	USB - Windows 10 / 11 - DLLs - Hexa - Labview - Python/Linux									
Power supply	24V - 4A (220/110V power converter included)									

* The table above is indicative - scroll down the website dedicated page to see all standard configurations and prices or contact AeroDIODE to build your own Centrale-I version
** Other performance are available. Contact AeroDIODE for special needs.

Classification:

Name	xxxxCENTRALEI
Laser diode seeder version :	780 ; 785 ; 795 ; 1270 ; 1290 ; 1310 ; 1330 ; other (contact us)
SOA Driver version	1: On/Off Pulse and CW - std power level 2: Pulse only with AWG (1 ns - 8µs) - see the product page called «laser seeder with SOA modulation» 3: High power for BOAs (O-band exclusively)

Ordering information:

Centrale-I : 1310CENTRALEI - [3]

Nominal Wavelength :
780 ; 785 ; 795 ; 1270 ;
1290 ; 1310 ; 1330 ; Other...

Driver version
1 : TTL
2 : AWG-based user designed pulse shape
3 : High power BOA driver in the O-band



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