

Data Sheet

DBL 100kW

The DBL delivers a high power, single mode, continuous wave Dynamic Beam Laser designed for demanding industrial and free space applications. By coherently combining multiple single mode fiber amplifiers through an Optical Phased Array architecture, the system generates a diffraction limited beam.

Unlike conventional fiber lasers with a fixed Gaussian profile, the DBL provides real time control over beam shape, phase, and intensity distribution. This allows the user to tailor energy placement to the specific application, whether for deep penetration welding or optimized free space propagation.

Configurable parameters include programmable beam profiles and advanced free space optical capabilities, delivering a scalable 100 kW platform with high brightness and precise control of the output beam



Applications

- Direct Energy Weapon
- Power Transmission
- Space Debris

Dynamic Beam Laser Features

- **Electro-Optical Beam Steering**
Fast, inertia-free beam steering through electronic phase control without mechanical movement.
- **Diffraction Limited High Power**
Maintains single mode beam quality even at very high output power.
- **Atmospheric Compensation**
Compatible with adaptive correction strategies for improved turbulence resilience.
- **Scalable Power Architecture**
Coherent beam combining enables power scaling without degrading beam quality

Technical Specifications

Parameter	DBL100kW
Optical characteristics	
Operation Mode	CW/ PWM
Optical output power [kW]	100
Power tunability [%]	10-100
Polarization	Linear
Wavelength [nm]	1064 ± 1
Optical output	
Beam output	Free Space Collimated beams
Aperture diameter [mm]	<Ø47
Fiber length [m]	3
Delivery fiber length [m]	
Environmental conditions for operation	+5°C to +45°C humidity < 60% non- condensing
Environmental conditions for transportation and storage	-5°C to +45°C humidity < 60% non- condensing
Cooling Requirements	
Method	Reverse osmosis water with inhibitors
Cooling capacity [kW]	250
Nominal water flow rate [l/min @ bar]	1,000 @ 6
Cooling water temperature range	22 ± 1
Electrical characteristics	
Supply voltage	250 - 400 VDC
Power consumption [kW] (w/o chiller)	350

Technical Specifications

Parameter	DBL100kW
Optical Cabinet	
Weight [Kg]	6000
Dimensions W*D*H [m]	3 x 1.4 x 2
Laser Head	
Weight [Kg]	40
Dimensions W*D*H [mm]	420x540x310
Closed Loop Module	Optional
Safety	
Class 4 Laser Device	Standard IEC60825-1:2014
Interlock system	Facility door interlock circuit X2
User interface	Safety key switch, emergency off button. visual emission indicator light

