



Optimized for industrial applications, the Pearl™ TKS delivers industrial-grade laser performance and control in a full-function turn-key system.

Integrating nLIGHT's single-emitter based Pearl™ fiber-coupled diode laser modules, the system offers unparalleled reliability. The system's fast modulation rates, high reliability and robust industrial design make it the perfect tool for industrial applications.

Features

- Convenient user interfaces: RS-232, CAN-BUS, USB, Analog, or front panel control
- FieldFlex™ technology allows for in-field upgrade or replacement of Pearl modules
- Field replaceable fiber optic cables
- Industrial-grade sealed TEC with bi-directional temperature control
- Redundant interlocks for machine tool integration
- Advanced warning protocol prior to system errors
- DiodeSafe™ electronics
- Industrial grade electronics with multiple operation modes: CW, QCW, Gated, or Triggered Power Control
- 19" rack design with slim 3U form factor
- Intuitive graphical user interface software for simple system control

Applications

- FPD Bonding
- Li-Ion Battery Welding
- Projection Displays
- Plastic Welding
- Soft Soldering
- Thin Metal Welding
- Medical Systems
- Entertainment
- Marking / Engraving
- Material Heating

Typical Device Performance Pearl

Package		P10			
Optical					
Wavelength	nm	790-830 nm			
Wavelength tolerance	nm	± 10			
CW output power	W	20	30	40	50
Fiber core diameter	µm	400 or 600			
Beam divergence	NA ¹	0.17			
Fiber length (standard)	m	2.0			
Electrical					
Power conversion efficiency (typical)	%	50			
Operating current (typical)	A	5.7			
Operating voltage (typical)	V	7.4	11.1	14.8	18.5
Mechanical					
Storage temperature range ²	°C	-40 to +80			
Mass	gr	220			
Thermal					
Operating temperature ²	°C	+15 to +25			
Accessories					
Line Generator Optic Modules Collimator and Spot Generator Optic Modules Monitor Photo Diode PPS™ OEM Diode Controller Turn-Key System					

Typical Device Performance TKS

Package		TKS-A	TKS-B	TKS-C
System Characteristics				
Mode of Operation		CW/QCW		
Maximum Heat Dissipation	W	60	100	120
Output Power Tunability	%	0-100		
Output Power Stability	%	<1		
Electrical				
Supply Voltage	VAC	100-250		
AC Power Supply Frequency	Hz	50-60		
Power Consumption	W	<350	<550	<600
Min Pulse Width	µs	10		
Rise/Fall Time	µs	<10 /10		
Maximum Repetition Rate	kHz	12.5		
Duty Ratio	%	5-95		

Proven Performance

Mechanical				
Dimensions (LxWxH)	mm	432x482x133		
Weight	kg	16		
Cooling Method		Air Cooled		
General Condition				
Operating Temperature	°C	20 to +35		
Storage Temperature	°C	-20 to + 60		
Temperature delta from ambient to diode temperature	°C	15	10	5
Maximum Diode Waste Heat	W	60	100	120
Relative Humidity ¹	%	10 to 95		

¹A non-condensing environment is required for storage and operation.

Package Dimensions

