Taiko PDL M1 NEW

High-End Picosecond Diode Laser Driver

- NEW Enhanced power capability, new max. power mode
- Extended range of laser diode heads
- Extended range of repetition rates from 1 Hz to 100 MHz
- Calibrated optical power output with fine control
- Easy control via USB or local interface
- User-defined burst patterns, pulsed, and CW operation
- Fine wavelength adjustment
- Very low jitter
- External trigger input
- 5-year warranty

Applications

- Time-resolved measurements
- Lifescience, FLIM, FCS, STED
- Material science & Semiconductor diagnostics
- Metrology & Calibration
- Ranging & LiDAR
- Seeding

The Taiko PDL M1 is a high end laser driver that can operate and monitor any laser head from the LDH-I Series. The strengths of the Taiko are its enhanced power capability, smart monitoring of laser diodes and ease-of-use, making it accessible even to novice laser users. Changing the emission wavelength is as simple as plugging in a different laser head and the Taiko will automatically recognize its operational parameters.

More Power

The Taiko PDL M1 features enhanced power capabilities to operate high power laser diodes. For example, the latest generation of multi-transverse mode diodes can now deliver average optical output power of up to 150 mW in pulsed mode and up to 200 mW in CW mode. Such laser diodes are available covering the whole visible range. Furthermore, the laser diode heads can now be operated in two distinct modes: the classic linear mode the new max. power mode.

In linear mode, both pulse energy and pulse shape are guaranteed to remain constant over the entire range of repetition rates. This ensures a very stable instrument response function (IRF) for, e.g., lifetime measurements and offers perfect linearity of average power for every repetition rate.

The max. power mode allows reaching the highest pulse energy at each repetition rate. The exact amount of extra power that can be achieved depends both on the connected laser head as well as on the repetition rate at which it is operated.

Take full control

The Taiko PDL M1 offers very intuitive local and remote unser interfaces to accurately control and monitor all relevant laser diode parameters in pulsed, burst, or cw emission mode.

Specifications

Internal Oscillator	
Type	crystal locked
Operation mode	pulsed, burst or continuous wave (cw)
Repetition frequency range	1 Hz to 1 MHz in steps of 1, 2 or 5 times various powers of ten 1 to 100 MHz in steps of 1 MHz
Synchronization Output	
Amplitude	< -800 mV into 50 Ohms (NIM)
Pulse width	5 ns
Delay	sync output (falling edge) to laser output: typ. 10 ns, jitter < 20 ps
Input impedance (destination)	50 Ohms
Connector	SMA socket (female)
External Trigger Input	
Input voltage range	-5 to +5 V (TTL compatible)
Trigger level (adjustable)	-1 to +1 V
Required pulse width	> 5 ns
Delay	trigger input to optical output: typ. 16 ns, jitter < 20 ps trigger input to sync output: typ. 6 ns
Frequency range	single shot to 90 MHz
Input impedance	50 Ohms
Connector	BNC socket (female)
Gating Inputs	
Fast gate	pulsed or burst emission: transition time typ. 10 ns cw emission: rise time typ. 5-10 µs (from 0% to 80-90% of maximum cw emission power, wavelength dependent) User selectable input impedance: 10 kOhms with pull-up or 50 Ohms with pull-down
Connector type	1-pin LEMO Socket - 00.250 Series Example of connector: FFA.00.250.NTA
Slow gate	transition time < 1 ms
Connector type	4-pin LEMO Socket - 00.304 Series Example of connector: FGG.00.304.CLA
Remote Interlock	
Voltage	< 16 VDC
Loop resistance	10 Ohms maximum
Remote Interlock connectors	Lemo 00.304 and banana socket
Computer	
PC Interface	USB 2.0
Operating system	Windows™ 8 / 8.1 / 10
Power Supply	
Line voltage	220 / 240 or 110 / 120 VAC, 50 / 60 Hz
Power consumption	140 W maximum

Dimensions	
Base unit	355 x 311 x 95 mm (w x l x h)
Operation Environment	
Temperature range	10 to 40°C
Rel. humidity	< 80 %

These tables are updated on a regular basis based on data of recently manufactured laser heads. Other specifications such as shorter pulse widths or higher powers than listed might be possible depening on the performance of diodes on stock. Please contact us for more information. All measurements shown may be subject to a 10 % callibration error. Each laser head undergoes an extensive burn-in test to ensure long-term stability and is shipped with a comprehensive set of test data. This test data is kept in our database, which already holds records of more than 18 years.

PicoQuant GmbH
Rudower Chaussee 29 (IGZ)
12489 Berlin
Germany

Phone +49-(0)30-1208820-0
Telefax +49-(0)30-1208820-90
Email info@picoquant.com
Web www.picoquant.com

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