

ps

ns

GAIN SWITCHED LASER DIODE MODULE

PiLas

Advanced Laser Diode Systems



MADE IN GERMANY

CONTINUOUSLY TUNABLE PULSE REPETITION RATE

PiLas is a versatile, picosecond laser diode module designed for all industrial and scientific applications that require maintenance-free operation, continuous tuning of the repetition rate and low cost of ownership. Gain-switched operation of the semiconductor laser diode allows to emit optical pulses from 20 ps to 5 ns pulse width and peak power from 20 mW to 1 W in the wavelength range from 375 nm to 1600 nm. PiLas can be operated from pulse-on-demand up to 120 MHz and it can be easily triggered from an external source (master or slave mode). Every laser head is optimized to meet the customer's specifications requirements.

OPTIONS:

- + Fiber output (PM, SM, MM)
+ Fiber collimator w/o microfocus
+ Thermal wavelength tuning
+ Converter TTL to NIM level for trigger-out
+ Narrow spectral linewidth DFB-laser
+ Single-box OEM package

MAIN APPLICATIONS:

- + Detector testing (PMT, APD, etc.)
+ Time-resolved spectroscopy
+ Analysis of ultrafast electrical circuits
+ Semiconductor inspection
+ Fiber testing

OUTSTANDING FEATURES :

- + Wavelengths: 375 – 1600 nm
+ Pulse duration: 20 ps – 5 ns
+ From pulse-on-demand up to 120 MHz
+ External laser triggering
+ Continuously tunable repetition rate
+ Low timing jitter
+ Compact, light, dust-sealed OEM package
+ Maintenance free – no alignment required
+ Remote control
+ 24/ 7 operation

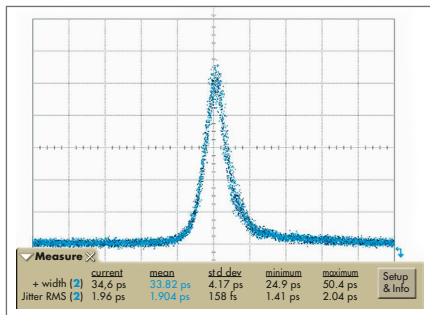


PiLas	
CENTER WAVELENGTH <sup>1</sup>	375 nm – 1600 nm
PULSE DURATION <sup>2</sup>	120 ps – 5 ns
PULSE PEAK POWER <sup>3</sup>	10 mW – 1 W
PULSE PEAK POWER <sup>3</sup>	1 – 50 p J
AV. OUTPUT POWER AT 100 MHZ	0.5 – 2 mW
PULSE REPETITION RATE	pulse-on-demand – 120 MHz
BEAM QUALITY	$M^2 < 1.1$ , TEM <sub>00</sub>
POLARIZATION EXT. RATIO	> 20 dB
TIMING JITTER <sup>5</sup>	< 3 ps (rms)
LASER OUTPUT	free-space or fiber output (PM, SM, MM)
ENVIRONMENTAL	
WARM-UP TIME	< 10 minutes
OPERATION TEMPERATURE	15 °C – 35 °C
STORAGE TEMPERATURE	- 20 °C – 65 °C
ON/OFF CYCLES	> 10000
MECHANICAL	
SIZE LASER HEAD	97 x 31 x 147 mm <sup>3</sup>
WEIGHT LASER HEAD	0.45 kg
SIZE OEM CONTROL UNIT <sup>6</sup>	168 x 129 x 33 mm <sup>3</sup>
WEIGHT OEM CONTROL UNIT	0.7 kg
SIZE STAND-ALONE CONTROL UNIT	235 x 88 x 326 mm <sup>3</sup>
WEIGHT STAND-ALONE CONTROL UNIT	2.5 kg
ELECTRICAL	
POWER SUPPLY	12 VDC/3 A or 100 – 264 VAC, 47 – 63 Hz
POWER CONSUMPTION	< 30 W
COOLING	
LASER SYSTEM	air cooled

<sup>1</sup> All commercially available laser diode wavelengths in this range  
<sup>2</sup> Depending on laser head model, pulse duration up to 5 ns possible  
<sup>3</sup> Depending on laser head model  
<sup>4</sup> Depending on laser head model and pulse duration  
<sup>5</sup> Not for DFB/DBR lasers  
<sup>6</sup> Other OEM versions available

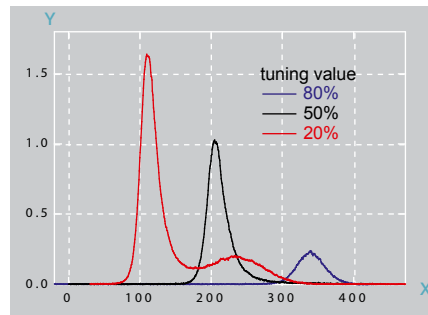


#### PULSE PROFILE



X TIME DELAY (ps)  
Y SAMPLING SCOPE SIGNAL (A.U.)

#### PULSE SHAPE VS TUNE VALUE



X TIME DELAY (ps)  
Y OPTICAL POWER (W)

