

# PPL 512 / PPA 512

## Programmable Pulsed Laser

- Programmable nanosecond pulse shapes
- 0.1 ns to CW
- Average power up to 20 mW
- Extinction ratio up to 70 dB
- FC/APC output, polarization maintaining



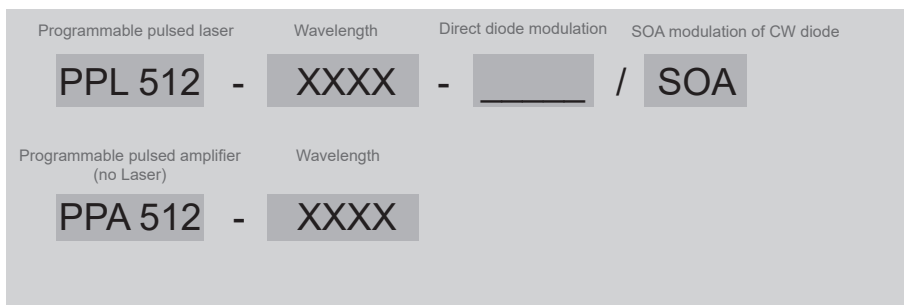
### Applications

- Seeding
- Detectors and camera testing

The PPL 512 / PPA 512 is a stand-alone, computer-controlled laser platform for the generation of nanosecond pulses with programmable pulse shapes. The resulting laser signal, featuring the defined pulse shape, is then output to a single mode fiber. In order to program the pulse shape, the PPL 512 / PPA 512 is connected to a host computer via a standard USB interface. The very compact form factor makes it ideal for integration into larger amplified laser chains.

By programming fast current slopes, not only nanosecond pulses can be generated but also gain switched operation becomes possible, which results in picosecond optical output pulses. Also, undesired ringing effects at fast switch-on transients can be reduced by defining specific current ramps. Moreover, saturation effects of optical amplifiers can be pre-compensated, which makes the device an ideal seeding source for fiber or solid-state amplifiers.

### Naming Scheme



## Wavelengths

Type	Wavelength	Min. pulse duration	Rise/Fall time	Max. avg. Power	Extinction ratio	Linewidth (FWHM)	Optical input
PPL 512 -	[nm]	[ns]	[ps]	[mW]		[nm]	
1030	1030 ± 2 nm	0.1	typ. 50	20	> 70 dB	typ. < 0.1	none
1030 / SOA	1030 ± 2 nm <sup>3</sup>	0.5	typ. 250	20	> 50 dB	typ. < 0.05, near transform limited	none
1050	1053 ± 1 nm	0.1	Typ. 50	20	> 70 dB	typ. < 0.1	none
1050 / SOA	1053 ± 1 nm <sup>3</sup>	0.5	Typ. 250	20	> 50 dB	typ. < 0.05, near transform limited	none
1060	1064 ± 1 nm	0.1	typ. 50	20	> 70 dB	typ. < 0.1	none
1060 / SOA	1064 ± 1 nm <sup>3</sup>	0.5	typ. 250	20	> 50 dB	typ. < 0.05, near transform limited	none
1550	1550 ± 20 nm <sup>4</sup>	0.1	Typ. 50	20	> 70 dB	Typ. < 0.1	none
1550 / SOA	1550 ± 20 nm <sup>3,4</sup>	0.5	Typ. 250	20	> 50 dB	Typ. < 0.05, near transform limited	none

Type	Wavelength	Min. pulse duration	Rise/Fall time	Max. avg. Power	Extinction ratio	Linewidth (FWHM)	Optical input
PPA 512 -	[nm]	[ns]	[ps]	[mW]		[nm]	
1030	1030 ± 5 nm <sup>1</sup>	0.5	typ. 250	20	> 50 dB <sup>5</sup>	N.A. <sup>2</sup>	FC/APC fiber receptacle, polarization maintaining. Max CW input power: 20 mW <sup>5</sup>
1060	1060 ± 10 nm <sup>3</sup>	0.5	typ. 250	20	> 50 dB <sup>5</sup>	N.A. <sup>2</sup>	FC/APC fiber receptacle, polarization maintaining. Max CW input power: 20 mW <sup>5</sup>
1550	1550 ± 20 nm <sup>1</sup>	0.5	Typ. 250	20	> 50 dB <sup>5</sup>	N.A. <sup>2</sup>	FC/APC fiber receptacle, polarization maintaining. Max CW input power: 20 mW <sup>5</sup>

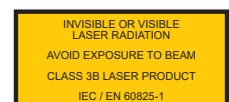
<sup>1</sup> PPA does NOT include the laser diode. The range of wavelengths shown corresponds to the acceptable wavelengths for the laser diode to be coupled externally.

<sup>2</sup> Depends on the CW laser input.

<sup>3</sup> Enhanced central wavelength stability!

<sup>4</sup> Exact wavelength on request, any between 1530 and 1570 nm.

<sup>5</sup> The best performances in terms of extinction ratio are achieved for a CW input level of 5-8 mW. Higher input power leads to more output power but a slightly decreased extinction ratio.



## Specifications

<b>Mainframe</b>	
Power Input Voltage	12 V (max. 18 V)
Current	max. 1.7 A
External Power supply	100 to 240 VAC, 50/60 Hz, max 100 Watt
Connector type	LEMO EXG0B302HLN-A
Dimensions	210 × 118 × 47.4 mm (l × w × h)
Net weight laser head	0.8 kg
Total weight incl. power supply, etc	1.6 kg
Power Dissipation	max. 20 W
Operating Temperature	15 to 35 °C
<b>Pulse pattern</b>	
Length	512 bytes
Readout speed	5 GS / s; 200 ps time bins; other sampling rates < 5 GS / s on request
<b>OP Mode Input</b>	
Amplitude	> 0.75 and < 1.1 V continues pattern generation with byte 0 after reading all 511 bytes < 0.2 V: pattern generation stops after reading 508 bytes unconnected: free-running mode
Impedance	500 Ohm
Connector type	SMA (female)
<b>Synchronization Output</b>	
Amplitude	+500 mV into 50 Ohm; falling edge at byte 253; rising edge at byte 508
Impedance	50 Ohm
Connector type	SMA (female)
<b>USB 2.0 UART (Virtual COM-Port)</b>	
Connector type	Mini-USB 2, type B
Baud rate	115200
Data	8 bit
Parity	none
Stop	1 bit
<b>Optical Output</b>	
Fiber receptacle	FC/APC, narrow key, PM single mode optical fiber, built in optical isolator
Max. reverse launched power	< 50 mW



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