

PPL 512 / PPA 512 NEW

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 |
|---------------|-----------------------------|------------------------|-------------------|--------------------|------------------|---|---------------|
| 1030 | 1030 ± 2 nm | 0.1 | typ. 50 | 20 | > 70 dB | typ. < 0.1 | none |
| 1030 / SOA | 1030 ± 2 nm³ | 0.5 | typ. 250 | 20 | > 50 dB | typ. < 0.05, near transform limited | none |
| 1050 | 1053 ± 1 nm | 0.1 | Тур. 50 | 20 | > 70 dB | typ. < 0.1 | none |
| 1050 / SOA | 1053 ± 1 nm ³ | 0.5 | Тур. 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 nm³ | 0.5 | typ. 250 | 20 | > 50 dB | typ. < 0.05, near transform limited | none |
| 1550 | 1550 ± 20 nm⁴ | 0.1 | Тур. 50 | 20 | > 70 dB | Typ. < 0.1 | none |
| 1550 / SOA | 1550 ± 20 nm ^{3,4} | 0.5 | Тур. 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 |
|------|--------------------------|------------------------|-------------------|--------------------|------------------|---------------------|--|
| 1030 | 1030 ± 5 nm ¹ | 0.5 | typ. 250 | 20 | > 50 dB5 | N.A. ² | FC/APC fiber receptacle, polarisation maintaining. Max CW input power: 20 mW⁵ |
| 1060 | 1060 ± 10 nm³ | 0.5 | typ. 250 | 20 | > 50 dB5 | N.A. ² | FC/APC fiber recep- tacle, polarisation maintaining. Max CW input power: 20 mW⁵ |
| 1550 | 1550 ± 20 nm¹ | 0.5 | Тур. 250 | 20 | > 50 dB5 | N.A. ² | FC/APC fiber recep- tacle, polarisation maintaining. Max CW input power: 20 mW⁵ |

* 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.

⁶ PPA does NOT include the laser dode. The range of wavelengths shown corresponds to the ac
 ² Depends on the CW laser input.
 ³ Enhanced central wavelength stability!
 ⁴ Exact wavelength on request, any between 1530 and 1570 nm.
 ⁵ 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.



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.

Specifications

| Mainframe | | | | | |
|--------------------------------------|--|--|--|--|--|
| 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 | | | | |
| Pulse pattern | | | | | |
| Length | 512 bytes | | | | |
| Readout speed | 5 GS / s; 200 ps time bins; other sampling rates < 5 GS / s on request | | | | |
| OP Mode Input | | | | | |
| 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) | | | | |
| Synchronization Output | | | | | |
| Amplitude | +500 mV into 50 Ohm; falling edge at byte 253; rising edge at byte 508 | | | | |
| Impedance | 50 Ohm | | | | |
| Connector type | SMA (female) | | | | |
| USB 2.0 UART (Virtual COM-Port) | | | | | |
| Connector type | Mini-USB 2, type B | | | | |
| Baud rate | 115200 | | | | |
| Data | 8 bit | | | | |
| Parity | none | | | | |
| Stop | 1 bit | | | | |
| Optical Output | | | | | |
| 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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