



# PPL-1064-PM-R



## 1064 nm Programmable Picosecond PM Laser

### OVERVIEW

The Optilab PPL-1064-PM-R is a programmable laser that produces picosecond pulses with electrical input pulses. It functions as a seed pulse generator for Master Oscillator Power Amplifiers (MOPA). The PPL-1064-PM is designed to produce < 100 ps widths and corresponding repetition rates up to 100 MHz from the user's electrical pulse generator. It features a high Extinction Ratio (ER) Mach-Zehnder Interferometer (MZI) optical modulator with a high pulse contrast of -30 dB. The PPL-1064-PM-R consists of a narrow-line-width, ultra stable, External Cavity Laser Diode (ECLD), centered at 1064 nm transmission wavelength. The External Cavity Laser (ECL) operates under Continuous Wave (CW) mode, modulated by a high speed modulator rise time of less than 35 ps. The Automatic Bias Controller (ABC) board is used to properly maintain the bias point of the optical modulator and ensure jitter free, ultra-fast pulse generation. It features PM fiber for polarization maintaining, and is available with an optional PM YDFA to boost peak pulse power. The laser system is equipped with a standard remote control interface (RS-232) and an LCD display screen for easy user interface, accessible through a front panel adjustment knob. Contact Optilab for more information.

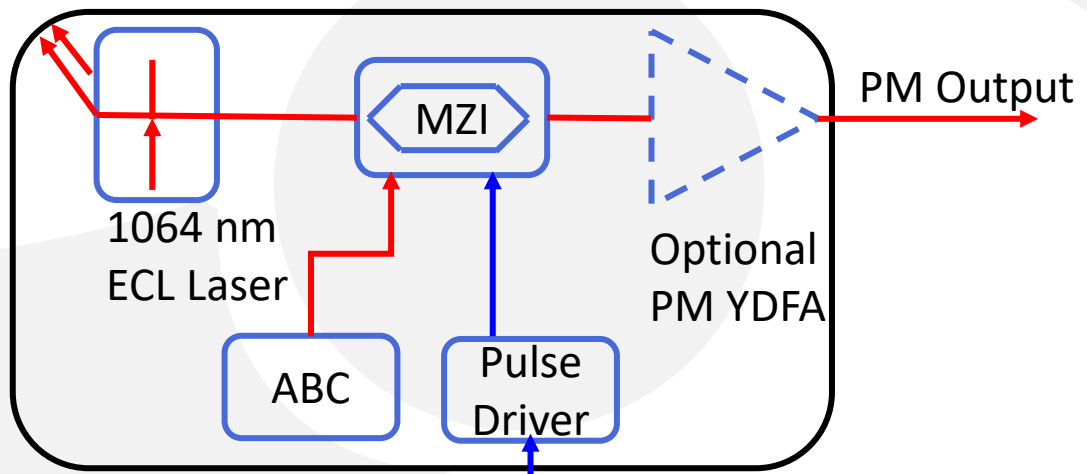
### FEATURES

- Programmable pulsewidth & repetition rate
- High speed optical modulator w/ < 35 ps rise time
- 1064 nm Wavelength External Cavity Laser
- High Pulse Contrast of -30 dB
- Generate short pulse of < 100 ps
- Uses external electrical input
- Optional high power PM YDFA
- Collimated output available

### USE IN

- Picosecond pulse generator
- Research & Development
- Testing & Measurement
- Master Oscillator Power Amplifier (MOPA)

### FUNCTION DIAGRAM





# PPL-1064-PM-R

## SPECIFICATIONS

Wavelength	1064 nm ± 10 nm
Wavelength Tuning Range	Up to ± 1.5 nm
Minimum Pulse Width	< 100 ps
Modulator Rise/Fall Time	< 35 ps
Source Laser Linewidth	5 MHz typ.
Pulse Repetition Rate	Programmable 50 KHz to 100 MHz depending upon electrical pulse input
Energy per Pulse	0.1 µJ
Pulse Contrast	-30 dB
Peak Power Output (no YDFA)	30 mW peak
Peak Power Output (w/ YDFA)	Up to 2 kW peak
Jitter Relative to RF Reference	10 rms max.
Pulse Amplitude Variation	1% rms max.
Polarization Extinction Ratio	20 dB typ.
Amplitude Stability (short term)	-20 dB typ.
Polarization Design	Single linear polarization, slow axis passing

## GENERAL

Modulator Bandwidth	Up to 20 GHz
Modulator Type	MZI with high ER ratio 40 dB
Input Level	> 0.5 V peak to peak
Pulse Repetition Rate	Programmable 50 KHz to 100 MHz
Minimal Pulse Width	< 75 ps
Electrical Input Frequency	50 KHz to 12 GHz
Electrical Connector	SMA

## ELECTRICAL PULSE INPUT

Operating Temperature	0°C to +50 °C
Storage Temperature	-40°C to +70 °C
Humidity	10% to 90%
Power Supply	100 V AC and 220 V AC, 50 or 60 Hz
Display	Temperature, Current, Voltage
Controls/Monitoring	LCD display
Communication Interface	RS-232 interface with optional Ethernet
Dimensions	IRU: 19" x 14" x 1.75"
Optical Connector	SMF-28 FC/APC or user option
Optical Fiber	PANDA Fiber PM
Electrical Connectors	SMA Female

## MECHANICAL



# PPL-1064-PM-R

## OPTIONAL COLLIMATOR

Collimated Beam Quality	$m^2 < 1.5$
Nominal Beam Diameter	1.2 mm
Average Optical Power	15 W max.
Peak Power for ns Pulse	15 KW max.
Fiber Type	PLMA-GDF-25/300

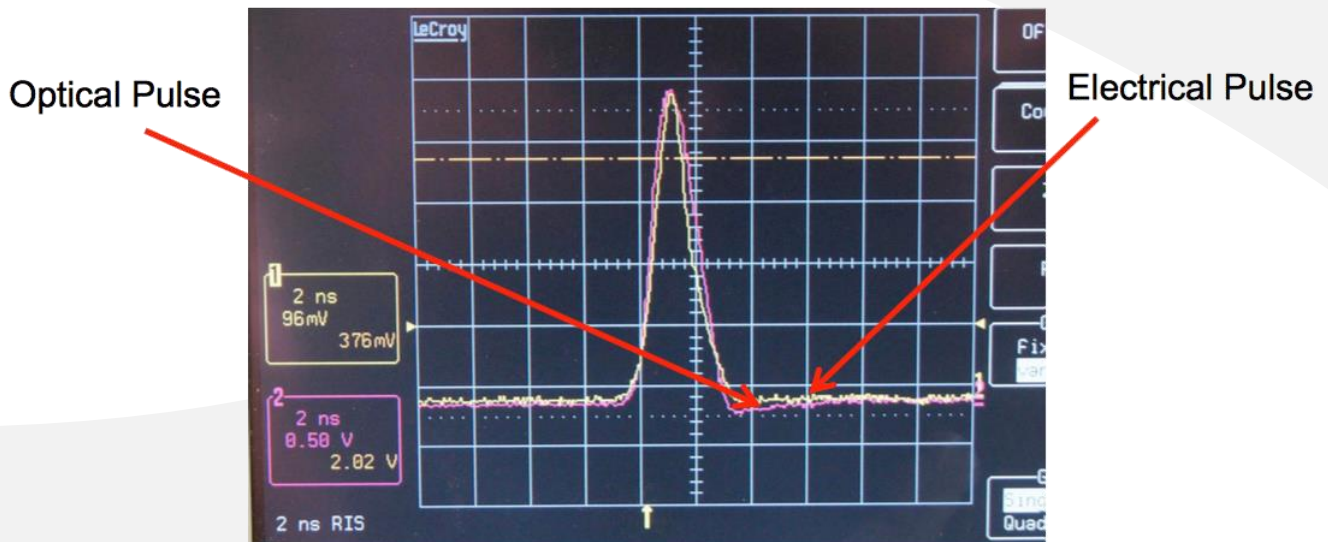
## OPTIONS

### PPL-XXXX-Y-PM-R

**XXXX**      Wavelength: 1064 +/- 10 nm  
**Y**            Peak Power

## OPTICAL PULSE OUT

The PPL-1064-PM-R has a linear translation from electrical to optical pulses with a 1:1 ratio. The electrical and optical pulses look nearly identical.



## PPL SYSTEM CONFIGURATIONS

The PPL-1064-PM-R has three different system configurations. First, the PPL-1064-PM-R without an YDFA. Secondly, the PPL-1064-PM-R with a PM YDFA to boost peak pulse power, and a collimating lens. And third, the PPL-1064-PM-R connected to the EPA-40-PM-R erbium-doped pulse amplifier. See the diagrams below.

