

# LPG-650

Pulsed laser for time-resolved detector diagnostics



The LPG can test both the time response of high speed photomultipliers and gating speed of image intensifiers.

The lens control allows the beam to be de-focussed and spread across the detector area and a variable width control for pulse widths between 40 ps to 800 ps. The LPG is also available with a 405 nm laser or a 350 nm UV LED, with other wavelengths available on request.

Product Parameters	Minimum	Maximum
Wavelength $\lambda$	645 nm	660 nm
Linewidth $\Delta\lambda$	3 nm	3 nm
Laser Class	Class 1	Class 1
Pulse Energy	8 pJ	100 pJ
Repetition Rate	0 Hz "Single Shot"	300 kHz Self-limited
Trigger Input	+3.2 V High $\Omega$ Input	+5.5 V High $\Omega$ Input
Power Supply	+9 V	+15 V
Supply Current @ +12 V	85 mA (No Trigger)	125 mA
Synch Pulse Output Impedance	50 $\Omega$	50 $\Omega$

## Key Attributes

- > Specifically designed for time-resolved diagnostics of high speed optical detectors
- > Simple to use with only a trigger input and synch output connector
- > A lens control allows the beam to be de-focussed and spread across the detector area
- > A variable width control allows pulse widths from 45 ps up to 800 ps

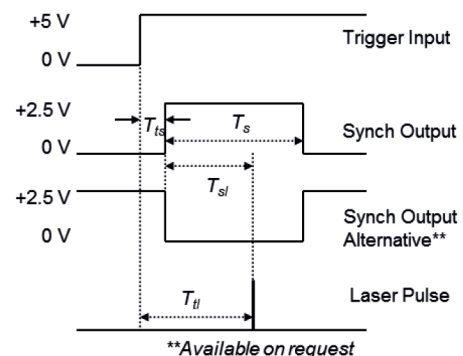
## Applications

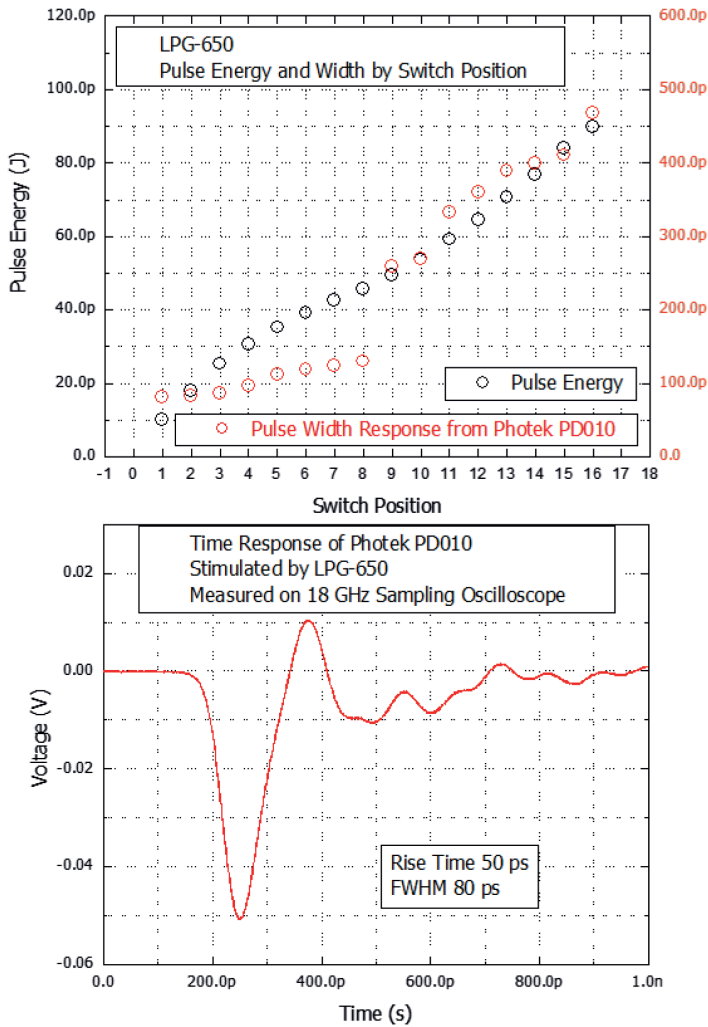
- > Time response of high speed photomultipliers
- > Gating measurement of image intensifiers

## Typical Timing Parameters

- > **Trigger :** Laser Delay  $T_{tl}^*$  46 ns  
Synch Delay  $T_{ts}$  14 ns
- > **Synch :** Laser Delay  $T_{sl}$  32 ns  
Pulse Width  $T_s$  90 ns
- > **Jitter :**  $T_{tl}$  Jitter 3 ps r.m.s  
 $T_{sl}$  Jitter 2 ps r.m.s

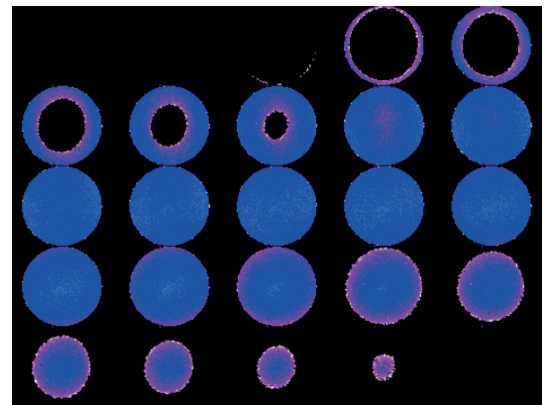
\* Can be reduced down to a minimum of 29 ns. This will also reduce  $T_{sl}$  to 15 ns.





### Gating Measurement

The true optical gating of an image intensifier is observed by synchronising the LPG-650 laser pulse with the gate unit, then adjusting the relative delay and stepping the laser through the gate pulse.



This result shows a LPG-650 laser pulse being stepped through a 4 ns gate window generated by a Photek GM200-3N gate unit on a Photek MCP118 image intensifier. Each step represents an extra 200 ps delay on the laser pulse.

Mechanical	
Height	54 mm (excluding mount post)
Width	61 mm
Length	149 mm (approx)
Weight	260g
Mounting Post Length (mm)	30, 40, 50, 60*, 80, 100, 120, 150, 200
Mounting Post Diameter	12 mm*, 20 mm
Trigger Input Connector	SMA
Power Supply Connector	SMB
Synch Output Connector	SMA

\* Standard Issue

### About Photek

**Photek is a specialist manufacturer of vacuum based tubes and camera systems for photon detection.**

Our product range includes; Camera Systems, Image Intensifiers, Photomultiplier Tubes, Streak Tubes plus a range of associated electronics.

We are experts in large area and ultra-high speed imaging and advanced photon counting camera systems.

Our continuing success is built upon continuous innovation and product development, and by harnessing and applying knowledge to find solutions for all of our customers' applications.

**Photek is accredited to ISO 9001 and ISO 14001.**



### Contact Us

**Our team of specialist engineers and scientists are ready to discuss your application requirements in depth.**

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