

## Laser Pulse Generator

### Features

- Time-resolved diagnostics of high speed optical detectors
- Trigger input and synch output connector
- Lens control allows the beam to be de-focussed and spread across the detector area
- Variable width control allows pulse widths from 40 ps up to 800 ps



### Applications

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

### General Description

The Photek Laser Pulse Generator (LPG) is designed for time resolved diagnostics of photomultipliers and image intensifiers. The LPG in conjunction with a digital delay/pulse generator (not supplied) can test both the time response of high speed photomultipliers and the gating speed of image intensifiers. The LPG features a lens control which 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 uses a laser diode with either a wavelength of 405 nm or 650 nm, other wavelengths are available on request.

### LPG-650 Parameters

	Minimum	Maximum
<b>Pulse Width</b>	40 ps	800 ps
<b>Wavelength <math>\lambda</math></b>	405 nm or 650 nm*	
<b>Line Width <math>\Delta\lambda</math></b>	3 nm	
<b>Laser Class</b>	Class 1	
<b>Pulse Energy</b>	8 pJ	125 pJ
<b>Repetition Rate</b>	0 Hz "Single Shot"	300 KHz Self-limited
<b>Trigger Input</b>	+3.2 V High $\Omega$ input	+5.5 V High $\Omega$ input
<b>Power Supply</b>	+9 V	+18 V
<b>Supply Current @ +12 V</b>	85 mA (No Trigger)	125 mA
<b>Synch Pulse Output Impedance</b>	50 $\Omega$	
*Other wavelengths available on request		

**Photek Limited**  
 26 Castleham Road, St Leonards on Sea,  
 East Sussex, TN38 9NS, United Kingdom.  
**T** +44 (0)1424 850555 **F** +44 (0)1424 850051  
**E** sales@photek.co.uk **W** www.Photek.co.uk

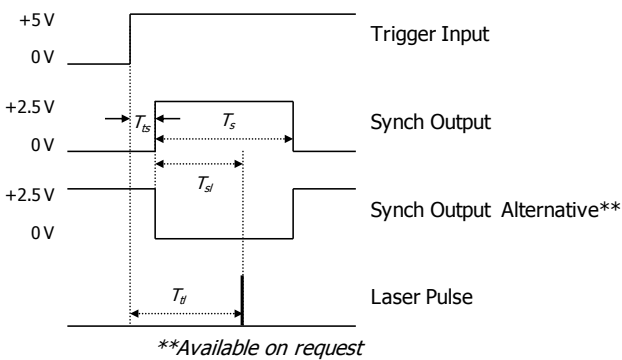
Datasheet No. DS008, Issue DR, Date 13 October 2010

**Exclusive Sales Agent** **GIDS-GmbH**  
 Julius-Hatry-Str. 1  
 D-68163 Mannheim  
**T:** +49 (0)621-820394-34 **F:** +49 (0)621-820394-33  
**E:** info@gids-gmbh.com **W:** www.gids-gmbh.com

Typical Timing Parameters

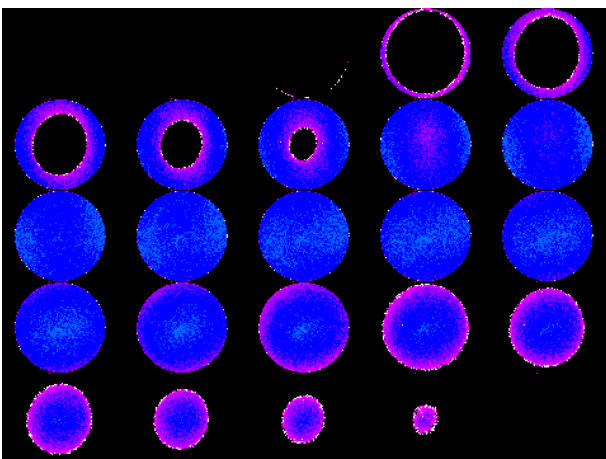
Trigger – Laser Delay $T_{tl}^*$	46 ns
Trigger – Synch Delay $T_{ts}$	14 ns
Synch – Laser Delay $T_{sl}$	32 ns
Synch Pulse Width $T_s$	90 ns
$T_{tl}$ Jitter	3 ps r.m.s.
$T_{sl}$ Jitter	2 ps r.m.s.

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



Gating Measurement

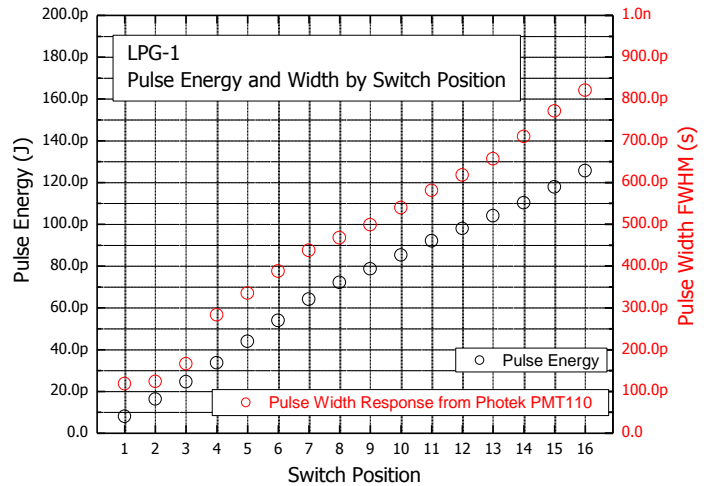
The true optical gating of an image intensifier is observed by synchronising the LPG laser pulse with the gate unit, then adjusting the relative delay and stepping the laser through the gate pulse.



This result shows a LPG 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.

LPG Pulse Energy



Mechanical

Height	54 mm (not including mounting post)
Width	61 mm
Length	149 mm (approx)
Weight	260 g
Mounting Post Length	30 mm, 40 mm, 50 mm, 60 mm*, 80 mm, 100 mm, 120 mm, 150 mm, 200 mm, 250 mm, 300 mm
Mounting Post Diameter	12mm*, 20 mm
Trigger Input Connector	SMA
Power Supply Connector	SMB
Synch Output Connector	SMA
*Standard Issue	

Photek Ltd reserves the right to update and improve this specification without prior notice