MODEL 6010 LIGHT PULSE GENERATOR

for PHOTOMULTIPLIER, PHOTODETECTOR AND FIBER OPTICS TESTING

Features

- Stabilized peak power level
- Peak power level control over 20 db
- 0-20 MHz rep rate control
- 15 ns-5 ms pulse width and CW mode
- Single shot, double pulse and repetitive pulses

Now Available in BLUE

Applications

- Converts data trains into light pulses
- Generates timing and stimulus pulses
- Time domain response testing
- Bit error rate testing
- Linearity, loss and sensitivity checks
- Component and system evaluation

The model 6010 is a light pulse generator that offers great versatility and many functions. With this instrument you can control and vary pulse repetition rate, pulse width, pulse delay and peak light power level.

The Model 6010 is both a light pulse generator and a stabilized (steady state) light source. It can operate in both pulse and CW modes for applications in digital, analog, time or amplitude domain testing. It offers continuously variable pulse rate, pulse width, pulse delay and power level control. A double pulse mode, which provides two light pulses whose spacing is variable, is useful for pulse pair resolution, system response, and general purpose timing tests. In the external trigger mode, the output light pulse follows the rate of an incoming data train. In the external drive mode, the light pulse follows both the rate and width of an incoming waveform.

The Model 6010's light generating circuits consist of an LED source, LED driver and an optical feedback loop. In the stabilized mode, the output light level is sampled and sensed by the optical feedback loop and phototdiode. Any fluctuations of light power due to temperature or duty cycle effects are sensed by the photodiode circuits and corrected by the LED driver circuitry. In the high speed mode, the stabilizing circuitry is removed from the control loop.

A locking ten-turn potentiometer allows the user to linearly control and set light power over a broad range. Power level and versatile timing controls enable the user to quickly isolate problems as well as test and calibrate optical systems and their components.

Berkeley Nucleonics Corporation BNC

Tel: 415/453-9955 Fax: 415/453-9956 www.berkeleynucleonics.com

LIGHT PULSE	IR MODEL 6010B	RED MODEL 6010A	GREEN MODEL 6010C	BLUE MODEL 6010G
Spectral Peak	820 nm	660 nm	560 nm	450 nm
Spectral Band Width	±20 nm	±30 nm	±30 nm	±35 nm
Power Output				
Peak	100 µW	200 µW	5 µW	100 µW
Maximum Stabilized *(stabilized peaks)*	100 µW	200 µW	5 µW	100 µW
Temperature Coefficient, *(stabilized, 10°C-40°C)*	0.05%/°C	0.05%/°C	0.05%/°C	0.05%/°C
Power Adjustment Range	20 db	20 db	20 db	20 db
Power Linearity (10:1)				
High speed	4%	4%	4%	4%
Stabilized	1%	1%	1%	1%
Rise Time				
High speed	10 ns	10 ns	50 ns	15 ns
Stabilized	100 ns	100 ns	500 ns	120 ns
Fall Time				
High speed	15 ns	25 ns	100 ns	50 ns
Stabilized	100 ns	100 ns	500 ns	250 ns
Light Pulse Out Connector	Amphenol 906[2] SMA style	Amphenol 905[1] SMA style	Amphenol 905[1] SMA style	Amphenol 905[1] SMA style
Mating connector required	SMA style	SMA style	SMA style	SMA style

Now in BLUE

[1] The cable connecting the light source to the 905 SMA is a 750 um OD bundle of fibers. The individual fibers have a 46 um OD and a NA of 0.55.
[2] The cable connecting the light source to the 906 SMA is a 100/120 um fiber with a NA of 0.22.

SPECIFICATIONS

OUTPUT MODES

Pulse/CW: Switch selectable, pulse or CW operation.

Stabilized/High speed (switch selectable): In stabilized mode, output intensity is monitored and stabilized via a feedback loop. In high speed mode, the feedback loop is switched out to allow fast risetime, high repetition rates, and narrow widths.

REPETITION RATE

Internal: 20 Hz to 20 MHz, high speed; 20 Hz to 500 kHz, stabilized. Continuously adjustable with course and fine controls. For 6010C and 6010G, max rates of 10 MHz High Speed.

External Trigger: 0 to the maximum Internal rate. 1 V positive pulse triggers a pulse (single or double) with internal delay and width controls operative.

External Drive: 0 to the maximum Internal rate. 1 V positive pulse generates an output pulse with a width equal to the width of the incoming pulse; internal delay and width controls are inoperative.

Single Cycle: One pulse occurs each time the pushbutton is depressed.

DELAY

20 ns to 10 ms, high speed; 1 µs to 10 ms, stabilized. Continuously adjustable with coarse and fine controls.

Single/Double Pulse: In the Single-Pulse mode, a single output pulse is delayed from the Trigger Out by an amount determined by the Delay controls. In the Double-Pulse mode, two equal width output pulses occur. The first pulse is coincident with the Trigger Out; the second pulse is delayed from the first by an amount determined by the Delay controls.

WIDTH

15 ns to 10 ms, high speed: 2 µs to 10 ms, stabilized. Continuously adjustable with coarse and fine controls. 6010C: minimum widths of 75 ns and 2 µs. 6040G 25 ns and 180 ns.

TRIGGER INPUT/DRIVE

Positive 1 V pulse, 50 ohms input impedance, ± 5 V maximum input.

TRIGGER OUT

Positive 2.5 V pulse, 10 ns risetime, 50 ohms output impedance.

PULSE OUT

Coincident with Light Pulse Out. ECL output (-0.9 V to -1.8 V); -0.9 V occurs while light source is on.

POWER REQUIREMENTS

115/230 V ± 10%, 50 - 400 Hz, 30 W.

MECHANICAL

5.25" H x 8.50" W x 13.0" D (133 x 216 x 330 mm).

WEIGHT

13 lbs. (5.9 kg) net; 19 lbs. (8.6 kg) shipping.

Berkeley Nucleonics Corporation BNC

Tel: 415/453-9955 Fax: 415/453-9956 www.berkeleynucleonics.com