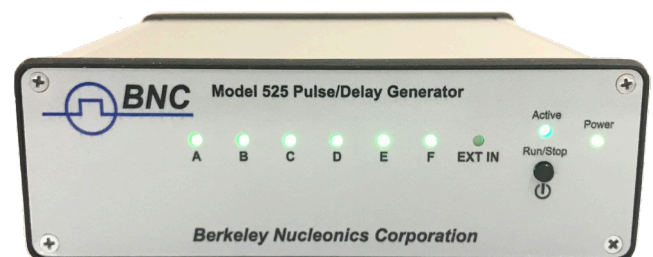


Features

- 6 Channels of Delay and Width
- 2 ns Timing Resolution
- < 50 ps RMS Channel Jitter
- USB Power
- LED Indicators

Applications

- ICCD/PIV Testing
- Laser Triggering / Gating
- Pulse DUTs and Pump Lasers
- Radar / Sonar Simulation
- High Speed Photography



Model 525 Datasheet

6 Channel Pulse / Digital Delay Generator



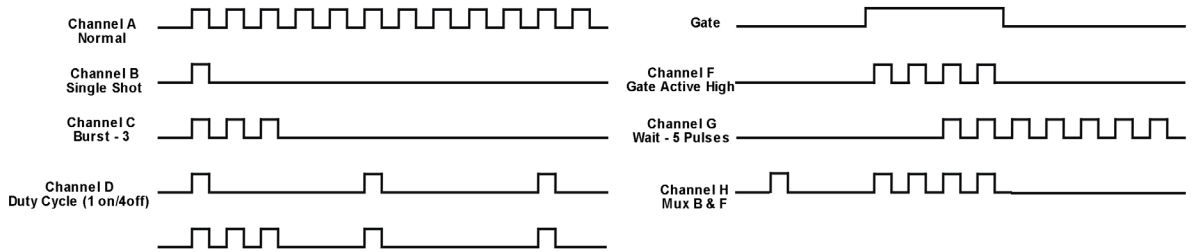
Model 525 Pulse / Digital Delay Generator

Description

The Model 525 Digital Delay/Pulse Generator offers users a performance benchtop delay generator rich with output features in a compact package. The interface is USB only, which eliminates the bulky front panel components and reduces the potential for mechanical problems. The timing and triggering flexibility is outstanding, with 20MHz rep rates, 2ns timing resolution, <50ps RMS Channel jitter and internal or external triggering options. Outputs can be selected for each channel, giving users the ability to trigger, gate or pulse various devices in a research project with different requirements. Single

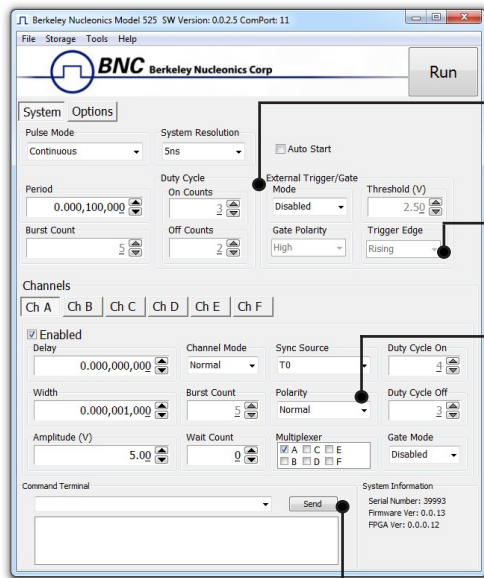
Pulse, Continuous, Burst, Duty Cycle and Cycle Counting are all selectable options for each channel. Wide pulses are also possible, with a width range of 10ns – 1000s and a delay from trigger range up to 1000s. Trigger externally with signals up to 30 V peak and widths as low as 20ns on the rising or falling edge.

The following diagram illustrates some popular output modes:



The friendly BNC GUI will be familiar to existing customers, with a few new features added. The additional channels in the Model 525 allow for a greater variety of pulse sequences and multiplexing. The SCPI option ensures LabView and other user-programmed utilities can control the Model 525 seamlessly. Additional details on the GUI follow:

Model 525



1: System Wide Trigger Selection (Internal or External)

2: Flexible Triggering Options (Leading or Falling Edge, etc)

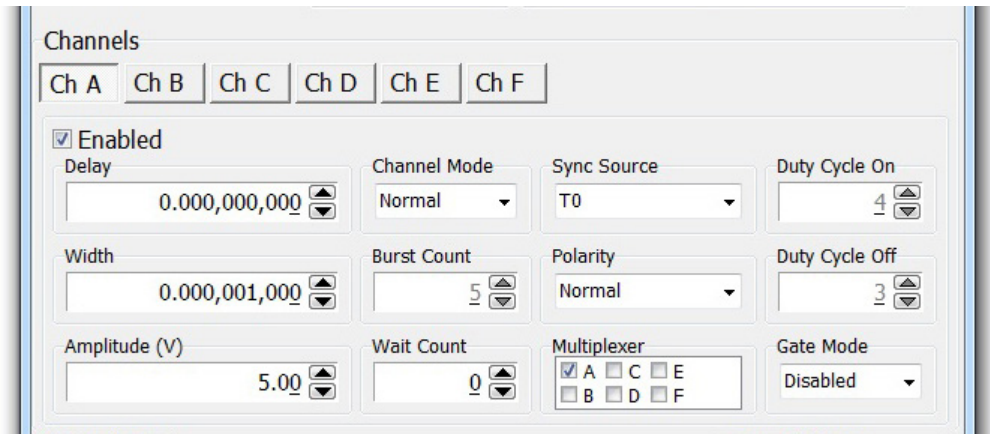
3: Channel Specific Menu offers unprecedented flexibility (Polarity, Mux, etc)

4: Channel Specific Menu offers unprecedented flexibility (Polarity, Mux, etc)

Main BNC GUI Interface

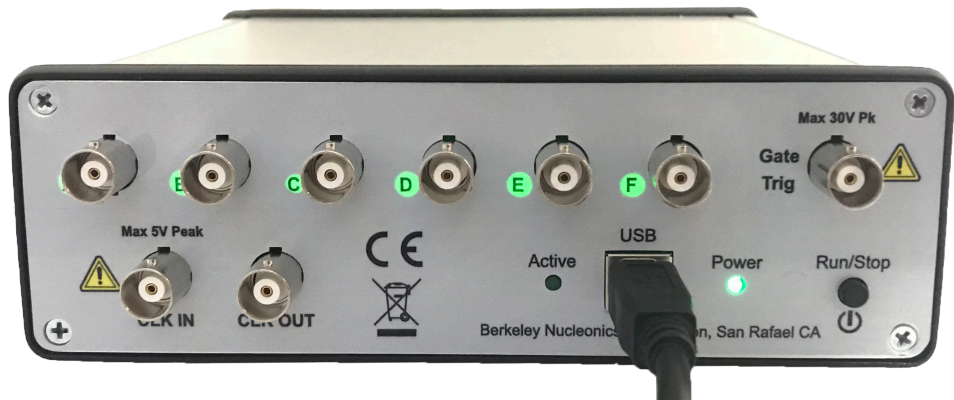
Model 525 Pulse / Digital Delay Generator

Model 525



Channel Parameters Sub-Menu

Channel Parameter Sub-Menu: Select channel properties quickly for absolute flexibility in output sequences (independent time and amplitude domain, burst, multiplex, gating, etc).



Model 525 Rear Panel Shown Above

The handy rear panel offers ample spacing of output connectors for easy setup. The Output nomenclature is backlit to enable a visual indicator of active channels. An external trigger can be used to initiate pulses, or a gate pulse can be used to limit pulses according to an active high or active low gate. Use the clock in to synchronize to laser cavities or other external sources. The compact design and power over USB reduce the bench

/ rack space required. With illuminated indicators on both panels, the Model 525 can be positioned with output cables on the front or back depending on user requirements. The Power Button doubles as a run/stop control as well, simply press to run or hold to power down.

Specifications

Internal Rate Generator	
Rate (To Period)	0.001Hz to 20MHz (1000s to 50ns)
Resolution & Accuracy	5 ns
Jitter	< 50 ps RMS
Burst / Duty Cycle Mode	1 to 1,000,000 pulses
Timebase	100 MHz, low jitter PLL
Oscillator	50 MHz, 50 ppm crystal oscillator, optional 1ppm clock
Pulse Control Modes	Internal rate generator, external trigger / gate
Systems Output Modes	Single, continuous, burst, duty cycle, cycle counts
Pulse & Period Counter	32 Bit
Synchronized Update Mode	Updates widths and delays on command
Pulse Delay Generation	
Width / Delay Resolution	5 ns
Width Range	10 ns - 1000 s
Width Accuracy	10 ns + 0.0001 x (width + delay)
Delay Range	±1000 s
Delay Accuracy	5 ns + (0.0001 x delay)
Multiplexer	Any / all channels may be OR'd to any / All outputs. 2x the number of outputs via virtual channels for mixing
Channel Output Modes	Single Shot, normal, burst, duty cycle
Channel Control Modes	Internally triggered or externally gated. Each channel may be independently set to any of the modes.
Jitter (Channel to Channel)	< 250 ps RMS
External Gate / Trigger Input	
Threshold	0.2 to 15 VDC
Max Input Voltage	30 V Peak
Gate Polarity	Active high / active low
Gate Control Modes	Pulse inhibit / output inhibit
Trigger Edge	Rising or falling
Trigger Rate	DC to 20 MHz
Trigger Input Jitter	< 5 ns RMS
Trigger Minimum Pulse Width	20 ns
Trigger Insertion Delay	< 100 ns
Pulse Inhibit Delay	< 150 ns
Output Inhibit Delay	< 100 ns
Trigger Input Function	System can generate a single, burst or duty cycle response of pulses for every external trigger pulse.
Outputs	
Output Impedance	50 ohm
Output Level	3.3 – 5 VDC into ≥ 1 K ohm, 1.7 – 2.5 VDC into 50 ohm
Resolution	20 mV
Current	5 mA into 1 K ohm, 50 mA into 50 ohm
Rise Time	< 2ns @ 5 V (high impedance), < 1ns @ 2.5 V (50 ohm)
Overshoot	< 100 mV + 10 % of pulse amplitude
General	
USB	Standard USB 2.0
Baud Rate	115200 bits / second
Voltage	+ 5 VDC ± 250 mVDC
Current	< 470 mA
Dimensions	7.125 x 5.1 x 1.5 inches (18.1 x 13 x 3.8 cm). 1lb

Ordering Information	
Model 525	6 Channel Digital Delay / Pulse Generator (includes travel bag)
P/N 525-HC	Hard Case for Model 525
P/N 525-3War	Extended Service Agreement, 3 Years (includes NIST Cal)
P/N 525-5War	Extended Service Agreement, 5 Years (includes NIST Cal)