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Model 575 Digital Delay / Pulse Generator

...our most versatile instrument



Features

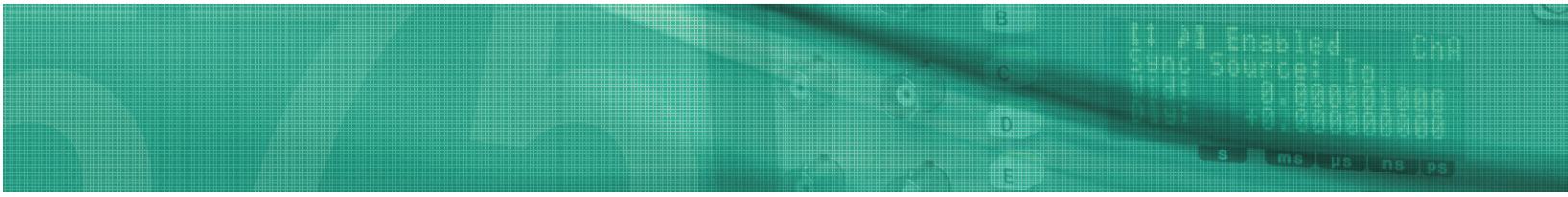
- 250pS Delay & Width Resolution
- 200pS Jitter Internal, 800pS External Trigger
- Independent clock rates for each channel
- Clock In & Clock Out
- Programmable (Ethernet/USB/RS-232/GPIB)
- Combine Electrical and Optical Outputs
- Dual Inputs (2 Gate / Gate+Trig / 2 Trig)

Applications

- Trigger, Gate, Delay, Pulse or Sync
- Sync to an External Clock (up to 100 MHz)
- Master/Slave or Multiple Unit Slave
- Pulse Pick (up to 100 MHz)
- Combine Pulses on One Channel

BNC

Precision Instrumentation since 1963....



Timing Resolution
Duty Cycle, Multiplex, Wait-N-Pulses
RMS Trigger Jitter
Negative Delays
Selectable Sync Source
Adjustable Delay, Adjustable Width
Independent Delay Properties on each Channel

BNC | MODEL | 575

The Model 575 Digital Delay / Pulse Generator represents the latest in timing capabilities. With up to 8 outputs configurations as varied as the applications the product serves, the Model 575 is clearly our most versatile instrument. We have combined advanced features such as a Labview/USB interface, complex burst sequences, Divide-by-N, Setting Profiles, Dual Triggers, Dual Gating, Clock Divider, Pulse Picking and Negative Delay with core technology in precision timing. Our 250pS Delay & Width resolution, and 200pS internal jitter, allow users great confidence in setting up an experiment or synchronizing multiple events. Learn more about the newest Berkeley Nucleonics Pulse Generator…the Model 575.

Many New Features:

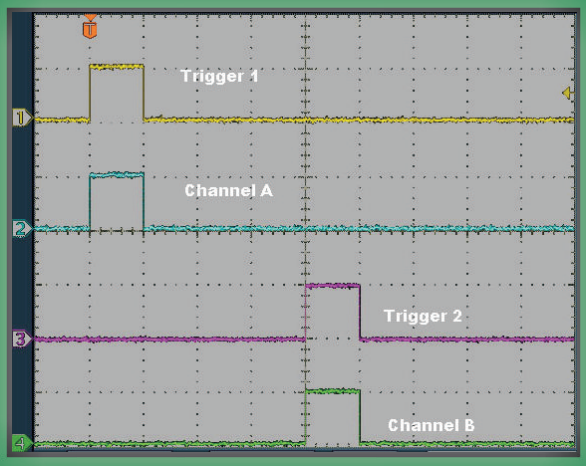
Illuminated Channel Enable Buttons

Each channel has a designated enable/disable button. When individual channels are active or enabled the buttons are illuminated. This allows for easy reference and avoids any confusion of output operability. The run/stop indicator on the front panel LCD display as well as an illuminated run/stop button further simplify setup.

Selectable Clock Reference

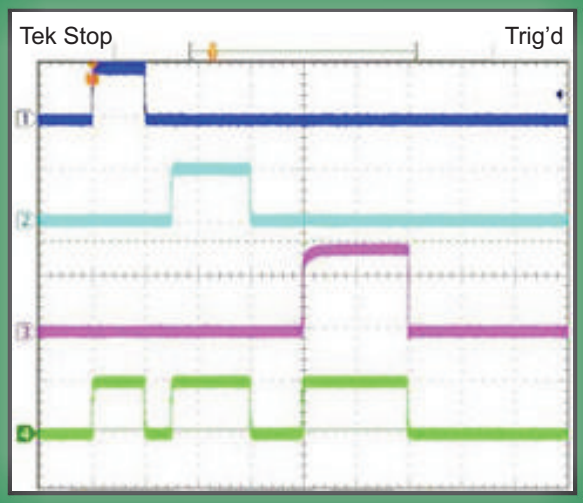
The Model 575 offers additional inputs and outputs for external clock syncing. Specify your input / output reference frequency (10MHz to 100MHz). Sync with the Mode Lock Oscillator of a laser, or phase lock multiple units with one clock.

Dual Triggers



Two independant inputs may be used as TriggerA and TriggerB. You can independantly select a trigger for each channel.

Multiplex Channels



Channel D is the combination of Ch's A, B & C while not using its own width and delay settings. However, Channel D is set up for only TTL output

Flexible Gating Options

The Model 575 is packed with gating options for almost any setup. You may gate with a channel or on any input. You may gate individual channels or gate all. Gate immediately (output inhibit) or gate after a pulse (pulse inhibit).

External Trigger Options

Select channels for internal / external triggering, or free-run. Triggered channels have flexible output choices: single pulse, burst at its clock rate, continuous pulse train or a series of on/off pulses (duty cycle).

Individual Rates

Each channel can have individual channel rates (either To or Tx... where Tx is the alternate channel rate for that specific channel... e.g. T1 for Channel 1). This is similar to having a separate clock for each output.

Adjustable Amplitude or Fast TTL/CMOS

Risetime is 3nS typ

Selectable Output Modes

High Voltage Pulses

Trigger or Gate or Both / Channel

20MHz Internal Rate Generator

Burst up to 1,000,000

Auto-Save

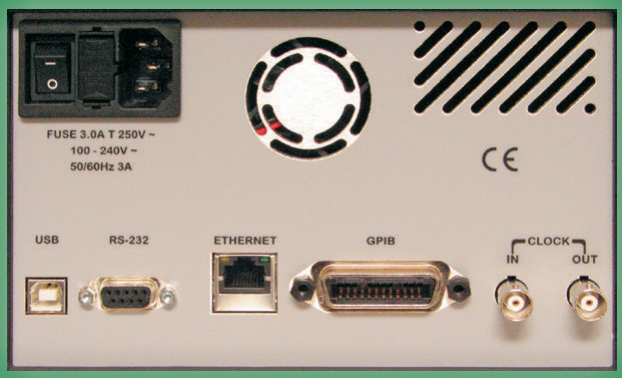
Forgot to save your settings? The Model 575 stores your setup configurations while powering down. Recall is automatic on power-up.

Dual Input Panel Connectors

The Model 575 offers two inputs for triggering or gating. User may specify electrical or optical input signals, and configure any trigger/gate combination. Use Trigger #2 to disable a triggered pulse train.

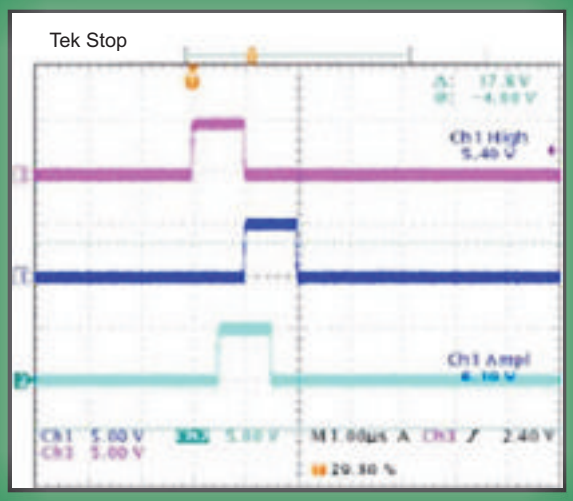
Front Panel High Voltage

Our modular architecture allows us to offer expanded functionality on user-selected front panel outputs. We offer a front panel High Voltage option (adjustable to 35V, 200 mV steps) on 2, 4, 6 or all 8 channels.



Model 575 Rear Panel (note Clock in/out, USB, Ethernet)

Negative Delay



Negative channel referencing is used to set a negative delay for one channel in reference to another channel.

Front Panel Optical

Many applications benefit from optical signals. For noisy environments, or communications applications, we offer an LED output stage at the front panel. This modular option can be configured for 2, 4, 6 or 8 outputs at 820nm or 1310nm.

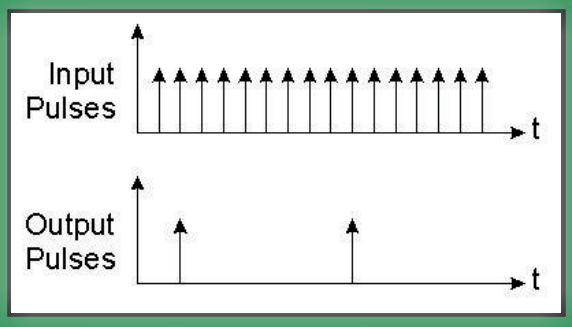
Combined output types

The outputs are configured in modules and output types are combined in pairs. Thus one may select optical, standard electrical or high voltage electrical in pairs for their instrument. For example, a 8 channel unit may have optical, standard electrical and high voltage outputs all on one instrument. Custom or additional output modules will be added as the need arises.

Field Programmability

The instrument can now have functions upgraded in the field, such as a special or custom feature upgrade via a fully programmable FPGA.

Pulse Picking



Using an external modulation up to 100MHz, you may select 1 out of every X pulses for a given channel.

2955 Kerner Blvd, San Rafael CA 94901
Tel: 415-453-9955 Fax: 415-453-9956
www.berkeleynucleonics.com

Timing Resolution
Duty Cycle, Multiplex, Wait-N-Pulses
RMS Trigger Jitter
Negative Delays
Selectable Sync Source
Adjustable Delay, Adjustable Width
Independent Delay Properties on each Channel

BNC MODEL 575

Delays

Range	0-5000s
Resolution	250ps
Timebase	25ppm (1ppm optional)
RMS Jitter	200ps
Pulse Inhibit Delay	150ns
Output Inhibit Delay	150ns

System External Trigger Input(s)

Number	Up to 2
Rate	DC to 1/(0.2us + longest delay)
Threshold	0.2 to 15 VDC
Maximum Input Voltage	60 V Peak
Resolution	10mV
Slope	Rising or Falling
Impedance	1000 ohm
Jitter	800ps RMS
Insertion Delay	100ns

Gate Input(s)

Number	Up to 2
Threshold	0.2 to 15 VDC
Maximum Input Voltage	60 V Peak
Resolution	10mV
Polarity	Active High/Active Low
Function	Pulse Inhibit or Output Inhibit
Channel Behavior	Global w/ Individual Channel Enables

Internal Rate Generator

Rate	0.0002 Hz to 20.000 Mhz (40 MHZ optionl)
Resolution	5ns
Accuracy	Same as timebase
Jitter	200ps
Settling	1 cycle
Burst Mode	1 to 10,000,000

TTL/Adjustable Outputs

Number	2, 4 or 8 Channel Outputs
Load	50ohm
Rise time (TTL)	3ns typ
Slew rate (Adjustable)	0.5 V/ns
Overshoot	<100mV + 10% of pulse amplitude
Levels	TTL 0 to 4 VDC
	*VAR adjustable amplitude, 2.0 to 20.0 VDC with 10mV res, 20.0 VDC max transition

Electrical inputs

Number	Up to 2
Rate	DC to 1/(0.2us + longest delay)
Threshold	0.2 to 15 VDC
Maximum Input Voltage	60 V Peak
Resolution	10mV
Impedance	1Mohm + 40pF or 50ohm
Function(s)	Individual Channel Trigger/Gate/Follower
Trigger Slope	Rising or Falling
Gate Polarity	Active High or Active Low
Trigger Jitter	< 2ns

Optical Outputs

Number	2, 4 or 8
Wavelength	820nm or 1310nm
Max Signal Rate	5 MBd
Max Link Distance	1.5km
Connector Type	ST
Resolution	500ps
Accuracy	1 ns + .0001 x Delay

Optical Inputs

Number	Up to 2
Wavelength	820nm or 1310nm
Max Signal Rate	5 Mbd
Max Link Distance	1.5km
Connector Type	ST
Resolution	500ps
Accuracy	2 ns + .0001 x Delay
Optical Trigger	2412
Trigger Delay	< 300ns
Jitter	< 15ns

Standard Features/Functions

Communications	USB/RS232
Global Gates/Triggers	2 Global Gate/Trigger Inputs
Channel Gates/Triggers	Optical/Electrial Available (5ns Jitter)
External Clock In	10 MHz - 100 MHZ User Selectable in descrete values
External Clock Out	10 MHz - 100 Mhz User Selectable in discrete values
Command Set Compatibility	Backwards Compatible

Ordering Information

575-2C (2 Channel / RS-232 & USB)
575-4C (4 Channel / RS-232 & USB)
575-8C (8 Channel / RS-232 & USB)
575-2C-COM (2 Channel / Ethernet, GPIB, RS-232 & USB)
575-4C-COM (4 Channel / Ethernet, GPIB, RS-232 & USB)
575-8C-COM (8 Channel / Ethernet, GPIB, RS-232 & USB)
Contact Factory for High Voltage or Optical Options

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