

# Product Demonstration

## *DG535 Digital Delay / Pulse Generator*



The DG535 is a precision digital delay and pulse generator that is used for high accuracy timing applications. The channel to channel jitter is less than 50 ps making it ideal for pulsed laser experiments.

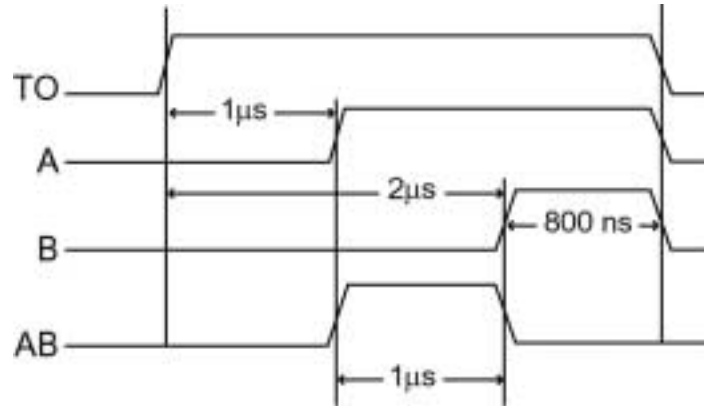
### ***Key Features***

- Delays to 1000s with 5 ps resolution
- Four delay, two pulse channels
- 50 ps rms jitter
- Adjustable amplitude and offset
- Trigger rates to 1 MHz
- Standard GPIB interface
- +/- 35 V outputs (opt.)

### ***Required Test Equipment***

- DG535
- 4 Channel oscilloscope
- Several BNC cables
- Frequency Counter (optional)

This product demonstration sets delays on channels A and B of 1 and 2 microseconds respectively. All outputs will be set to 3 volts and the DG535 will be triggered internally at 20 kHz. The A, B and AB outputs will be observed on an oscilloscope and should correspond to the following timing diagram.



DG535 Timing Diagram

## Setting up the Instrument

### 1. Initializing the DG535

Do a power up reset on the DG535 by holding down the BSP key while powering up the unit. Wait approximately three seconds and release the BSP key.



### 2. Setting the delays

Press the DELAY key. Use the left/right arrow keys to position the underline cursor and use the up/down arrow key to increase/decrease a number. Now, set channel A delay to 1 microsecond ( $A=T0+0.000001000000$ ). Press the DELAY key again and set B delay to 2 microseconds.



(#2-4)

### 3. Setting the trigger rate

Press the TRIG key to access the trigger menu. Move the underline cursor with left arrow key to INT and set the trigger mode to internal. Press the TRIG key again and set the internal trigger rate to 20 kHz.

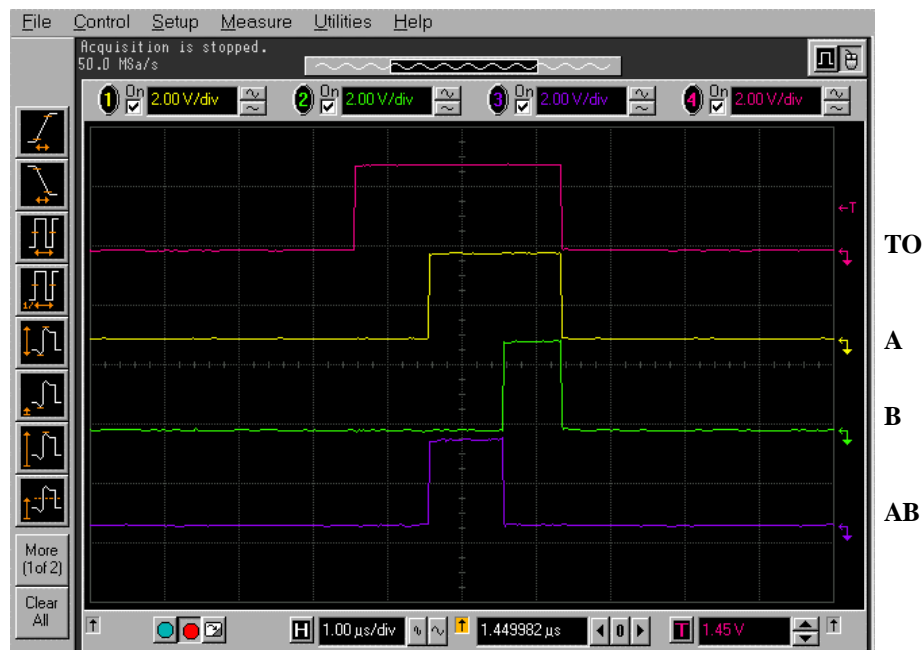
#### 4. Setting the output levels

Press the OUTPUT key. Use the left arrow key to position the underline cursor to A. Press the OUTPUT key again and set A delay output to High Z. Press the OUTPUT key again and move cursor to VAR. To set the A output to 3 volts, press the OUTPUT key one more time and use the up arrow key to set it to 3 volts.

Set the output level of T0, delay B and pulse AB to 3 volts.

### *Observing the Results*

Use BNC cables to connect the A, B and AB outputs of the DG535 to channels 1, 2 and 3 of the oscilloscope. Trigger the oscilloscope with the T0 output of DG535. Set each channel of the scope to 1V/div and the time to 1  $\mu$ s /div.



**Note:** All of the delay outputs return low about 800 ns after the longest delay.