



Q-switch Control for Double-Pulse Generation

For Pulse-Separation Time Less Than 100 μ s

For short Pulse Separation (less than 100 μ s)

Double pulse operation uses a precision double pulse modulation input to the External Variable (EXT. VAR.) BNC input on the rear panel of the Q Switch driver.

Pulse Modulation Input Specification:

- 1st pulse: duration should be approximately 300 to 350 ns.
- 2nd pulse: duration should be approximately 3 μ s.

The laser pulse pair separation is determined by the separation of the input pulse leading edges. The laser pulse pair occurs approximately 4 μ s after the input. The first laser pulse occurs a little less than 4 μ s after the leading edge of the first input pulse. The second laser pulse occurs a little more than 4 μ s after the leading edge of the second input pulse.

The width of the first input pulse determines the amplitude of the first laser pulse. As the first laser pulse amplitude is increased, the second laser pulse amplitude is decreased (varies inversely). If the first input pulse is too wide, the first laser pulse will be at maximum amplitude, and there will be no second laser pulse.

Typical Input Pulse settings:

Approximate Width of First Pulse required for equal amplitude double laser pulse.

Pulse Separation Time	1.5 μ s	10 μ s	100 μ s
Pulse Pair Frequency			
0.5 kHz	300 ns	320 ns	330 ns
1.0 kHz	300 ns	320 ns	350 ns
2.0 kHz	350 ns	360 ns	440 ns
3.0 kHz	520 ns	560 ns	

Sample oscilloscope traces:

1 μs per
division

1.5 μs
separation

Input Pulse

Laser Pulse



2 μs per
division

10 μs
separation

Input Pulse

Laser Pulse

