



9550 Series

数字延迟脉冲发生器

9550系列脉冲发生器的设计旨在满足实验室和用户对多通道应用的需求。



编程简便，功能强大，记忆调用轻松

该机架式设备可选配 1U 或 2U（19英寸标准机架）规格，具体尺寸取决于通道数量。标准配置下，其时序分辨率为 250 皮秒，抖动低于 50 皮秒。



规格

- 尺寸:
 - 1U 19" x 10" x 1.75" 6/12 独立通道
 - 2U 19" x 10" x 3.50" 24/36 独立通道
- 重量: 8 lbs to 12 lbs
- 电源: IEC标准电源线
 - 电压: 100 to 240 VAC
 - 电流: 3A
- 存储: 6至36个存储单元（数量随设备型号/通道数变化）
- 重复频率: 最高 20 MHz。
- 时序分辨率: 250 皮秒。
- 时序抖动: 低于 50 皮秒
- 通信接口: USB、RS232、以太网
- 输入: 3个可选的触发/门控输入

通道时序发生器	
脉冲宽度范围	10 ns - 1000 s
脉冲宽度精度	1 ns + [0.0001 x (width+delay)]
脉冲宽度分辨率	250 ps
脉冲延迟范围	10 ns to 2000 s
延迟精度	1 ns + (0.0001 x delay)
延迟分辨率	250 ps
通道间抖动, 均方根值	< 50 ps
通道模式	单次触发、常规、脉冲串、占空比
控制模式	支持内部触发或外部门控。每个通道均可独立设置

内部速率发生器	
重复频率 (T0 period)	0.0002 Hz to 20 MHz
分辨率	5 ns
精度	1 ns + (0.0001 x Period)
T0 周期抖动 (RMS)	< 50 ps
时基	200 MHz, low jitter PLL
振荡器	50 MHz, 25 ppm crystal oscillator
系统输出模式	单次、连续、脉冲串、占空比、外部门控/触发
脉冲串模式	1 to 4,000,000 pulses
占空比模式	1 to 4,000,000 pulses
脉冲控制模式	内部速率发生器, 外部触发/门控

Trigger / Gate	
触发边沿	Rising/Falling
触发电平	0.2 to 15 V
最大输入电压	30 V
分辨率	10 mV
最大触发频率	DC to 5 MHz
触发输入抖动 (RMS)	800 ps
触发输入输入延迟	160 ns
触发输入最小脉冲宽度	20 ns
门控脉冲禁止延迟	160 ns
门控输出禁止延迟	160 ns

输出模块	
TTL/CMOS Mode	
输出阻抗	50 Ohms
输出电平	4.0 VDC into ≥ 1 k ohm
上升时间 (10%-90%)	< 3ns typical into ≥ 1 k ohm
输出电流	5 mA typical into 1 k ohm 50 mA typical into 50 ohm
电平调节模式	
输出电平	2.0 to 20 VDC into ≥ 1 k ohm, 1.0 to 10 VDC into ≥ 50 ohms
分辨率	10 mV
输出电流	200 mA typical, 400 mA (short pulses)
上升时间(10%-90%)	15 ns typical @ 20 V (High Imp) 25 ns typical @ 10 V (50 ohm)
过冲	< 100 mV + 10% of pulse amplitude

复用功能

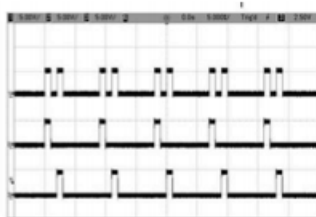
通过结合通道模式与复用 (MUX) 功能, 可实现多种复杂操作, 如双脉冲生成与脉冲宽度调制, 具体示例如下:

Ex. 1: Double Pulse – A double pulse waveform can be generated, as shown in the figure, by using the MUX function to combine two channels.

Scope Ch 1: Channel 1 output after combining channel 1 and channel 3 (mux code: 3).

Scope Ch 2: Channel 1 output before combining channel 3 (mux code: 1).

Scope Ch 3: Channel 3 output delayed as necessary to generate the required second pulse (mux code: 1).

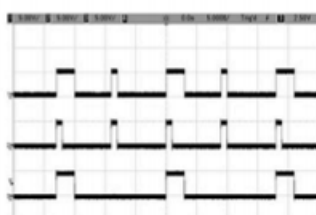


Ex. 2: Alternating Pulsewidth – An extended pulse can be generated every other pulse, as shown in the figure, by using the MUX function to combine two channels.

Scope Ch 1: Channel 2 output after combining channel 2 and channel 4 (mux code: 3).

Scope Ch 2: Channel 2 output before combining channel 4 (mux code: 1).

Scope Ch 3: Channel 4 output extended as necessary to generate the required second pulse (mux code: 1). The channel is in duty cycle mode (1 on, 1 Off) to generate the alternating pattern.



Channel Sync Function	6 / 12	24	36	12	24	36	6 / 12	24	36
MODEL#	SYNCA			SYNCA			SYNCT		
6 / 12 Channel Units	6			12			trigger sync		
24 Channel Units		6		12	24				
36 Channel Units			6	12	24	36			

Command: `$PULSEnSYNCA | SYNCA | SYNCT`

Column 1 – Sync Mode Disabled



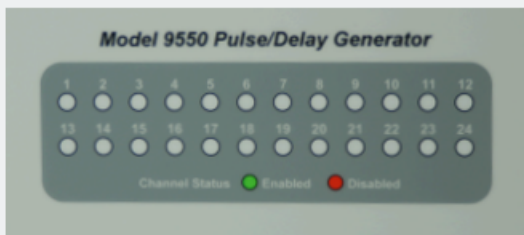
Column 2 – Sync Mode Enabled



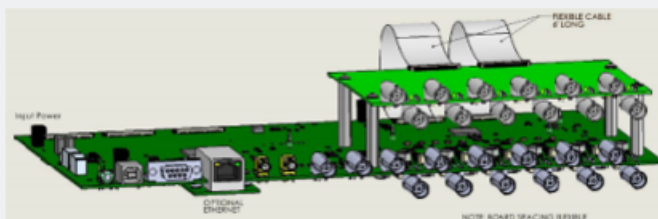
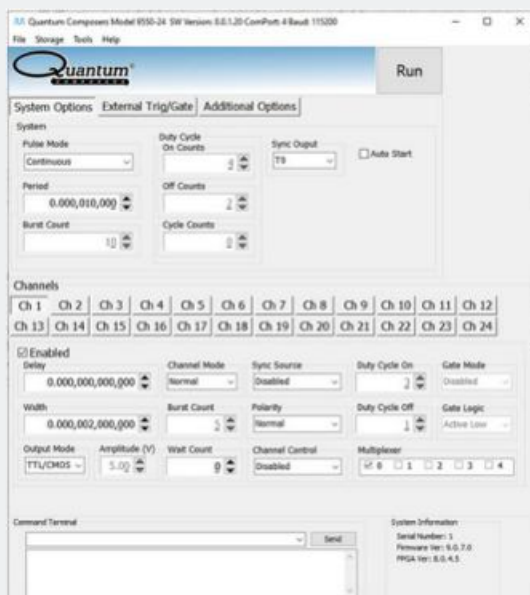
Scope Ch1 – channel 1 - normal mode, wait = 1
 Scope Ch2 – channel 2 - duty cycle mode (5 on, 3 off), wait = 1
 Scope Ch3 – channel 3 - burst mode (3 pulses), wait = 0
 Scope Ch4 – channel 6 - (sync pulse) duty cycle mode (1 on, 7 off), wait = 0.

通道锁相

QC 9550 的通道同步功能可将通道锁定至同步脉冲, 如第2列所示。请注意, 当同步启用时, 通道3的脉冲串输出始终锁定于通道2输出的起始时刻。



Software included



Board Level Available



Rear view of 9550-24

