8000 Series

Board Level Digital Delay Pulse Generators

Quantum Composers now provides board level digital delay pulse generators. The 8000 series board products retain all functionality of the standard pulse generators in an easy to integrate package. These boards provide a cost-effective method to create and synchronize multiple sequences, delayed triggering, or any precisely timed series of events. We offer computer interfaces for ease of programming and full integration support.

Key Features

- **Board Level Product for Easy Integration**
- **1 ns or 250 ps Timing Resolution Available**
- **2, 4 or 8 Fully Independent Channel Outputs**
- **Full Integration Support**
- **2 Year Warranty**

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8510 Series
Pulse Generator Boards

Key Features

- 1 ns timing resolution
- < 400 ps channel to channel RMS jitter
- Independent control of width and delay on 2, 4, or 8 channels
- Standard RS232, GPIB & USB communication interfaces
- Advanced programming - multiplexing, channel referencing, burst, wait, duty cycle.

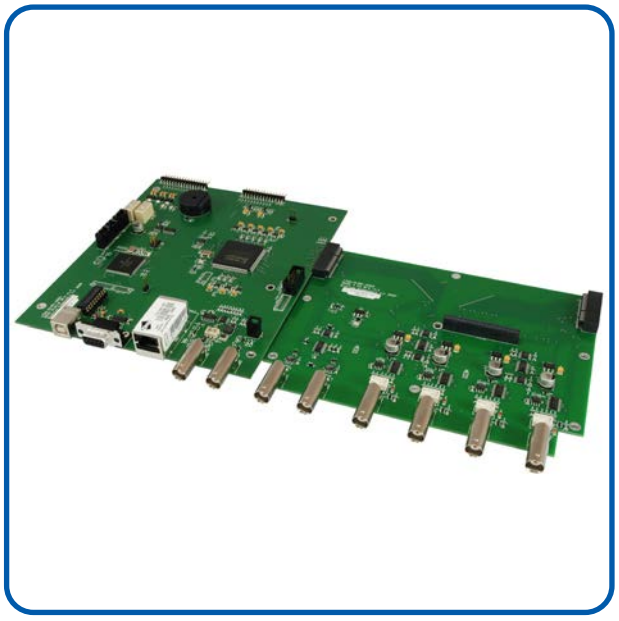
The Model 8510 Series Board Level Pulse Generator comes with 2, 4, or 8 independent outputs and is designed to provide cutting edge, cost-effective solutions to generate and synchronize multiple pulses for a variety of applications. The delay and pulse width for each channel are independent and digitally controlled which makes the instrument ideal for situations that require synchronizing a number of different timed events. Flexible operating modes allow complete control of pulse outputs, including continuous, duty cycle, burst and single shot with external trigger/gate. More advanced features such as multiplexing allow the timing of all or several channels to be combined for complex pulse patterns. Control of the instrument is provided through the standard RS232, USB, and GPIB Interfaces.

8530 Series
Board Level Pulse Generator

Key Features

- 250 ps timing resolution
- < 50 ps channel to channel RMS jitter
- 4 or 8 independent channel outputs
- Internal rate generator 10 ns period resolution over entire frequency range (10 MHz)
- Standard Computer Interfaces RS232, USB and Ethernet
- Dual inputs (gate and trigger)

The Model 8530 Series Board Level Digital Delay Pulse Generator represents the latest in timing and synchronizing capabilities. The 8530 comes with four or eight independent outputs, dual trigger gate inputs and external clock reference input, making it ideal for laser system timing applications. The system can directly phase lock to an external timebase up to 100 MHz in frequency and down to 20 mV in amplitude. This allows synching directly to a laser photodiode signal, which provides complete system timing relative to the laser with low jitter. The 8530 also provides a clock output that is capable of driving a 50 ohm load and can be used to provide a master timebase to other delay generators or equipment.



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SPECIFICATIONS — 8510 Series

MODELS
8512 - 2 independent channel outputs
8514 - 4 independent channel outputs
8518 - 8 independent channel outputs

Communications: RS232, GPIB & USB Ports
Configuration Storage: 12 memory slots

PULSE GENERATION

channel modes	single shot, burst, normal, duty cycle
delay	0 to 1000 s
negative delay	0 to -1000 s
pulsewidth	10 ns to 1000 s
resolution	1 ns
accuracy	1.5 ns + 0.0001 delay
time base	50 MHz, 25 PPM crystal oscillator
RMS jitter	< 400 ps channel to channel
burst mode	1 to 1,000,000

EXTERNAL TRIGGER/GATE

rate	DC to 5 MHz
threshold	500 mV to 15 V
input range	0 - 200 mV
trigger slope	rising or falling edge
RMS jitter	< 5 ns
insertion delay	< 150 ns

INTERNAL RATE GENERATOR

system modes	single shot, burst, continuous, duty cycle
rate (T_0 period)	200 ns to 5000 sec. (0.0002 Hz to 5 MHz)
resolution	10 ns
accuracy	5 ns + 0.0001 x period
RMS jitter	< 400 ps channel to channel
burst mode	1 to 1,000,000 pulses

OUTPUTS

outputs	TTL/CMOS, adjustable 2 - 20 V,
impedance	50 ohms
slew rate	> 0.5 V/ns
overshoot	< 100 mV + 10% of pulse amplitude

OPTIONS

PS - Power Supply

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SPECIFICATIONS — 8530 Series

MODELS 8534 - 4 independent channel outputs
8538 - 8 independent channel outputs

Communications: USB, RS232 & Ethernet Ports
Configuration Storage: 12 memory slots

PROGRAMMABLE TIMING GENERATOR

channel modes	single shot, burst, normal, duty cycle.
control modes	internally triggered, externally triggered and external gate
output multiplexer	any/all channels may be multiplexed to any/all outputs
delayed output	0 to 9,999,999 pulses
timebase	same as internal rate generator

DELAYS

range	0 - 1000 s
accuracy	1.5 ns + 0.0001 delay
resolution	250 ps
RMS jitter	< 400 ps
pulse inhibit delay/output inhibit delay	120 ns / 50 ns

INTERNAL RATE GENERATOR

timebase	100 MHz, low jitter PLL
rate	0.0002 Hz to 10.000 MHz
resolution	10 ns
accuracy	same as timebase
RMS jitter	50 ps
burst mode	1 to 9,999,999 pulses
oscillator	50 MHz, 25 ppm

TTL /ADJUSTABLE CHANNEL OUTPUT IMPEDANCE 50 ohm

TTL /CMOS Mode

output Level	4.0 V typ into 1 kohm
rise time	3 ns typical
slew rate	> 0.5 V/ns
jtter	50 ps RMS

ADJUSTABLE MODE

output level	2.0 to 20 VDC into 1 kohm, 1.0 to 10 VDC into 50 ohms
output resolution	10 mV
current	200 mA typical, 400 mA max (short pulses)
slew rate	> 0.1 V/ns
overshoot	< 100 mV + 10% of pulse amplitude

TRIGGER/GATE DUAL INPUT MODULE (standard)

Standard dual channel input, providing one trigger input and one gate input. May be used with the dual trigger firmware option to provide two independent trigger sources.

threshold	0.2 to 15 VDC
maximum input voltage	60 V peak
resolution	10 mV
input impedance	1 Mohm + 40 pF or 50 ohm
trigger insertion delay	< 180 ns
trigger jitter	< 800 ps RMS
external clock in/out	10 MHz - 100 MHz

OPTIONS

I - Incrementing (provides automatic high speed incrementing/decrementing of delay and/or pulsewidth for each channel)
TZ50 - Quad Channel, High Current TTL/CMOS (for driving 50 ohm loads) & Adjustable Output Module
DT15 -Dual Trigger Logic – provides additional trigger via gate input
PS - Power Supply

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