

PDG-2510 Two Channel Digital Delay Pulse Generator



- Sync (T0) Plus Two Independent, Digitally Controlled Outputs
- 0 to 99.9S Delay and Pulse Width Ranges With 25ns Resolution
- 100KHz Maximum Frequency (Internal Trigger), 5MHz (External Trigger)
- Standard RS-232 Computer Interface
- Store & Recall Up To 5 System Configurations
- Continuous, Single-Shot, External Trigger, Burst, Counted Burst, Pulse Count And Divide-By-N Modes

The PDG-2510 is a precision digital delay and pulse generator providing two output channels, each with independently adjustable delay and pulse width, plus a Sync (T0) output. The accuracy, precision and flexibility of the PDG-2510 makes it well suited for use in laser timing, automated testing and precision pulse applications.

The PDG-2510's Sync (T0) output marks the beginning of a timing cycle, and is generated by the internal rate generator or in response to an external trigger. The delay and pulse width of the two outputs can be set from 0 to 99.9S relative to the T0 trigger with 25 ns resolution on its highest precision range.

The PDG-2510 can be triggered internally from 1 Hz to 100 KHz with three-digit frequency resolution. External, single-shot (front panel push-button) and burst mode triggers are also supported. In external trigger mode, the maximum trigger frequency is 5MHz.

Operating modes include continuous (pulse generator), pulse count, divide-by-N, burst and counted burst, providing flexible control of the pulse outputs. The output pulse waveforms may be inverted in all operating modes. Pulse widths can be specified as a time period, or set based on a duty cycle (ratio of pulse "on" time to "off" time) for a given frequency.

The PDG-2510 may be operated through its intuitive front panel controls. For automated applications, complete control of the generator is provided through the standard RS232 computer interface. Up to five system configurations may be stored in internal non-volatile memory, providing instant recall of frequently-used configurations.

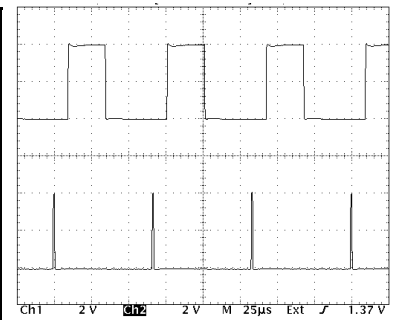
The PDG-2510's versatility, ease of use and Sync (T0) plus two independent outputs make it well suited for a wide variety of test and measurement tasks. It is also ideal for laser timing applications, in which the Sync (T0) output is used to trigger the pulsed laser and set the system's repetition frequency. Delayed output 1 controls the laser Q-Switch, and output 2 can be used to synchronize other elements in the system, such as a detector or data acquisition hardware.

Operating Modes:

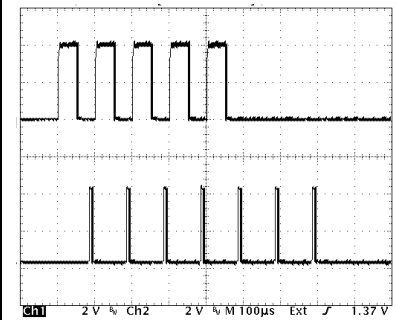
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|------------------------------------|---|
| Pulse Generator Mode | Generates pulses at the rate set by the internal frequency generator, or by an external trigger |
| Pulse Count Mode | Outputs pulses at the rate set by the internal frequency generator or external trigger and stops after N pulses |
| Divide By N (Output-2 Mode) | Channel 1 operates in continuous mode, channel 2 pulses every Nth pulse on channel 1 |
| Burst Mode | Generates a burst of pulses, repeating at a set interval. Provides user-control over the number of pulses in each burst, the frequency of the pulses within the burst, the delay between bursts and delay between burst packets |
| Counted Burst Mode | Generates a burst of pulses, and stops after N bursts |

SPECIFICATIONS

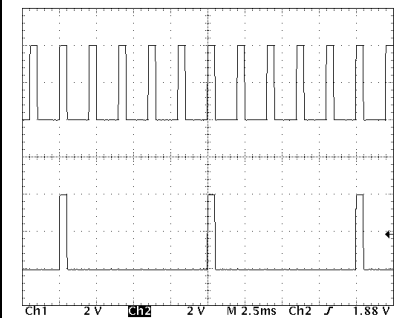
PARAMETER	Value
OUTPUTS	
Output Channels	Two (2) outputs, each with independent digitally controlled delay and pulse width
Delay Range	0 to 99.9 Seconds
Pulse Width Range	25 Nanoseconds to 99.9 Seconds
Delay And Pulse Width Resolution	25 Nanoseconds below 1 Microsecond 50 Nanoseconds from 1 Microsecond to 10 Microseconds 3 Digits Above 10 Microseconds
Accuracy (Delay and Pulse Width)	±2%
Time Base	24MHz, ±25PPM Crystal Oscillator
Delay Jitter (1 st Sigma)	2ns + 6E-6 x Delay Period
Trigger Delay (External Trigger to SYNC (T0) Output)	50 Nanoseconds typical
Internal Throughput Delay (SYNC (T0) To Output 1 Or Output 2 Rising Edge)	70 Nanoseconds typical
Output Rise & Fall Times (Into 50Ω)	<12 Nanoseconds
Over/undershoot	<3%
Amplitude	+4V into 50Ω, +5V into 1MegΩ
Maximum Output Current (Per Channel)	300mA
Output Connectors	BNC, Front Panel
INTERNAL RATE GENERATOR	
Modes	Continuous, Single-Shot, Burst, External Trigger
Rate	Single-Shot or 1.00Hz to 100KHz (Internal) Single-Shot to 5MHz (External Trigger)
Resolution	3 Digits
Accuracy (Continuous, Pulse Count, Output-2 Modes)	25 PPM
Accuracy (Burst Mode)	±2%
Rate Jitter (Continuous, Pulse Count, Output-2 Modes), 1 st Sigma	30E-9 x Rate Period
Rate Jitter (Burst Mode), 1 st Sigma	6E-6 x Rate Period
Burst and Pulse Count Mode	2 to 30,000 Pulses per Burst or Count
EXTERNAL TRIGGER INPUT	
Type	Positive Edge Trigger
Input Amplitude	TTL into 1KΩ
Input Impedance	1KΩ
Minimum Trigger Pulse Width	25ns
Input Trigger Connector	BNC, Front Panel
T0 (SYNC) OUTPUT	
T0 (Sync) Output	TTL output into 1 MegΩ, 2.5V into 50Ω
Connector	BNC, Front Panel
COMPUTER INTERFACE	
Interface Type	RS-232 9600 Baud, 8,N,1
Interface Connector	DB-9, Rear Panel
GENERAL	
Internal Non-Volatile Storage	5 Configurations
Operating Temperature Range	0°C to +40°C
Cooling Requirements	Air cooled
Input AC Power	90-264VAC, 47-63Hz, 28W Maximum
Dimensions (H X W X D)	3 ½" H x 8 ½" W x 13" D (8.9cm H x 21.6cm W x 33cm D)
Weight	7 lbs. (3.2kg) Approximate
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE	



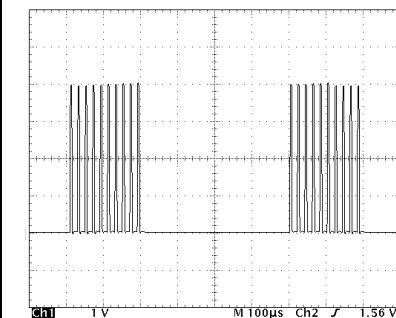
Pulse Generator Mode
Output 1 Delayed 10µs from T0



Pulse Count Mode: Output 1 = 7 Counts,
Output 2 = 5 Counts Delayed 80µs from T0



Divide By N Mode: Output 2 = Output 1 / 5



Burst Mode
10 Bursts/Pulse, 400µs Packet Interval

9200-0219 REV 2

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