9250 Emerald

Digital Delay Pulse Generator

Our Emerald pulse generator was designed to meet the growing demand for high resolution pulse generators without the high cost. This unit comes standard with a 280 ppb TCXO oscillator, giving you the performance you demand.

- 4 Independent Channel Outputs
- 5 ps Delay Resolution
- TCXO 280 ppb oscillator
- < 15 ps RMS Jitter
- "Virtual" Channel Timers
- Fast Rise Time, < 2 ns
- 8 Independent Pulses (width & delay) with the virtual timers
- Up to 20MHz External Trigger Rate
- Wireless Option Via Bluetooth
- Full Customer Support

Quantum® COMPOSERS

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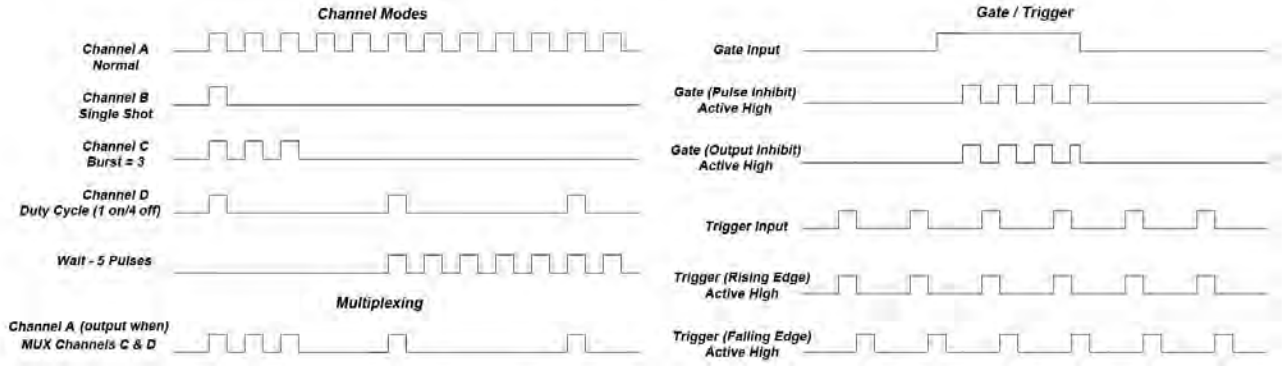
The Emerald Pulse Generator

The Emerald comes standard with 4 independent outputs, and a TCXO 280ppb oscillator. The resolution and accuracy of the width, delays, and period counters is improved over the previous version. This allows for finer adjustments on the widths, delays and period. Also new are the virtual channels which effectively double the number of channel timers the unit may utilize, the 4 channel model adds 4 "virtual" channels. A "Period Counter" has been added which measures the time between incoming external trigger pulses. The Emerald also has an optional (TZ50), for driving 50 ohm loads & adjustable output module. With intuitive, streamlined GUI control of timing parameters and quick recall of up to 6 system configurations, the instrument is instantly ready for use. Complete control of the Emerald is provided through the standard USB interface and optional Bluetooth connectivity.

Digital Delay Output Modes



Special Features

Bluetooth Wireless Connectivity

The Bluetooth wireless capabilities are truly unique with this unit. With the Bluetooth option, you can control the instrument wirelessly using the included software application, communications terminal or other terminal programs. This unique feature allows you to communicate with Bluetooth equipped devices, such as laptops and some tablets or smartphones.

Graphical User Interface

The Emerald uses an included software application as the primary means of communication. The software allows simple and easy control of the unit via USB or optional Bluetooth wireless, enabling the user to create complex pulse trains and save them for future recall. The software also allows users to manually input SCPI (Standard Commands for Programmable Instruments) based commands via the Command Terminal Section.

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SPECIFICATIONS

Emerald Series

MODEL 9254 4 independent channel outputs
(up to 8 independent pulses with virtual timers)

Standard Communications: USB Port
Configurations: 6 Memory Slots

INTERNAL RATE GENERATOR	
Rate (To period)	0.00025 Hz to 25Mhz (40ns - 4000s)
Resolution & Accuracy	4 ns
Jitter	< 500 ps RMS
Burst / Duty Cycle Mode	1 to 1,000,000 pulses
Timebase	250 MHz, low jitter PLL
Oscillator	25 MHz, 280 ppb crystal oscillator
Pulse Control Modes	Internal rate generator, external trigger / gate.
System Output Modes	Single, continuous, burst, duty cycle.
Synchronized Update Mode	Updates width and delays on command.
PULSE / DELAY GENERATION	
Width Resolution	4 ns
Width Range	8 ns - 4000 s
Width Accuracy	10 ns + 0.0001 x (width + delay)
Jitter (Channel to Channel)	15 ps RMS + (1e -8x delay)
Delay Resolution	5 ps
Delay Range	±4000 s
Delay Accuracy	1ns + (0.0001 x delay)
Output Multiplexer	Any / all channels may be OR'd to any / all outputs.
Channel Output Modes	Single Shot, normal, burst, duty cycle
Channel Control Modes	Internally triggered or externally gated. Each channel may be independently set to any of the modes.
TZ50 (Optional)	3.3 – 5.0 VDC into ≥ 1K ohm , 2.8 – 4.4 VDC into 50 ohm
EXTERNAL GATE / TRIGGER INPUT	
Threshold	0.2 to 15 VDC
Max Input Voltage	30 V Peak
Gate Polarity	Active high / active low
Gate Control Modes	Pulse inhibit / output inhibit
Trigger Edge	Rising or falling
Trigger Rate	DC to 20 MHz
Trigger Input Jitter	< 6 ns RMS
Trigger Minimum Pulse Width	20 ns
Trigger Insertion Delay	< 75 ns
Pulse Inhibit Delay	< 150 ns
Output Inhibit Delay	< 100 ns
Trigger Input	Function System will generate a To pulse for every external trigger pulse.
OUTPUTS	
Output Impedance	50 ohm
Output Level	3.3 – 5 VDC into ≥ 1 K ohm, 1.7 – 2.5 VDC into 50 ohm
Resolution	20 mV
Current	5 mA into 1 K ohm, 50 mA into 50 ohm
Rise Time (10%-90%)	< 2ns @ 5 V (high impedance), < 1ns @ 2.5 V (50 ohm)
Overshoot	< 100 mV + 10 % of pulse amplitude
COMMUNICATIONS	
Bluetooth (Optional)	Bluetooth 2.1
Antenna	Class II Radio, 4 dBm output transmitter, - 80 dBm typical receiver sensitivity
Range	Typically 20 meters in open air (line-of-sight)
Baud Rate	115200 bits / second
GENERAL	
Dimensions/Weight	7.125 x 5.1 x 1.5 inches (18.1 x 13 x 3.8 cm), 1lb
Power & Std. Communications	Power is provided only by an external wall adapter power supply (included)
Voltage	+ 5 VDC ± 250 mVDC
Current	< 1.5A

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