Features

- Four TTL-level delay outputs, individually programmable for delay and pulse width
- 10 picosecond delay and width resolution, 10 second range
- 21 nanosecond insertion delay, 16 MHz max trigger rate
- Low jitter, highly accurate DSP phaselock system provides crystal-clock delay accuracy with zero indeterminancy from external trigger
- Internal crystal oscillator timebase with external lock capability
- DDS synthesizer for internal trigger rates
- External universal power supply or 12-volt DC power
- RS-232 serial interface standard; Ethernet optional
- OEM packaged or board-only custom versions available

The T560 series is a family of small digital delay generators, intended for use in embedded OEM applications. The T560-1 is the standard, packaged version, usable in many OEM applications and as the evaluation unit for custom versions. It uses the technology developed for the Highland model V851 (VME module) and P400 (benchtop) digital delay generators, with basic TTL/CMOS input and output levels and advanced logic.

The T560 accepts an internal or external trigger and generates four precise output pulses, each user programmable in time delay and width. It is ideal for laser sequencing, radar/lidar simulation, or sequential event triggering. It is easily mounted within systems enclosures, allowing short cable runs and reliable, unattended operation.

Because of its low 20 nanosecond insertion delay, the T560 is ideal for timing and gating lasers, Q-switches, ICCDs, and other electro-optical devices, and for applying picosecond-resolution time trims to nuclear, radar, and sonar cabling and instrumentation.

The T750 4-channel high-voltage driver is available to extend T560 outputs to as high as 100 volts.
<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>4-channel digital delay and pulse generator</th>
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<tr>
<td>GATE FUNCTION</td>
<td>Programmable as level sensitive enable input, edge triggered burst enable input, or divisor enabled output</td>
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</table>
| GATE INPUT | Programmable termination, 50Ω or 500Ω to +2.5 V  
Logic low -0.3 V min, +0.7 V max  
Logic high +2 V min, +5 V max |
| GATE OUTPUT | Logic low +0.1 V typical, +0.4 V max @ 50 mA  
Logic high +5 V typical, +4 V min @ 50 mA |
| TRIGGER SOURCES | Internal DDS: 0 to 16 MHz, 0.02 Hz resolution  
Internal clock: 80 MHz  
Remote command or External signal |
| TRIGGER DIVISOR | 1 to 2^32-1, 125 MHz max input |
| EXTERNAL TRIGGER INPUT | Programmable termination, 50Ω or 10 kΩ to ground  
Programmable trigger level (+0.25 to +3.3 volts) and slope |
| CHANNEL OUTPUTS | A, B, C, D  
Four pulse outputs, 5 V, 50Ω source impedance, each programmable for delay, width, polarity |
| DELAY RANGE | 0 to 10 seconds, 10 ps resolution |
| WIDTH RANGE | 2 ns to 10 seconds, 10 ps resolution |
| INSERTION DELAY | 21 ns ± 400 ps, external trigger to any output |
| DIFFERENTIAL NONLINEARITY | < 200 ps |
| JITTER | < 35 ps typical (50 ps max) RMS, external trigger to any output or between any outputs  
Add clock jitter for delays > 500 µs |
| TRIGGER RATE | 0 to 16 MHz, limited to 1/(delay+width+60 ns) max |
| RISETIME | 750 ps max |
| FALLTIME | 750 ps max |
| CLOCK | Internal 10 MHz VCXO, 1 ppm initial accuracy, < 2 ppm/year drift  
Added jitter below 10 ns per second of delay  
TC below 0.2 PPM/°C  
Connector provides clock in/out  
Locks to external source  
Clock jitter and delay errors are zero relative to external source  
Optional higher-performance OCXO |
| TIMING ACCURACY | ± 400 ps ± 7.5 ps/°C ± clock accuracy |
| BURST | Programmable to fire N times out of each M triggers where N and M are 1 to 2^32-1 |
| OPERATING TEMPERATURE | 0 to 50°C, non-condensing |
| STORAGE TEMPERATURE | -20 to 80°C |
| CALIBRATION INTERVAL | One year |
| POWER | + 12 ± 0.25 volts, 0.3 amps max; 0.4 amps max with Ethernet  
Universal AC adapter supplied with evaluation package |
| COMMUNICATIONS | RS-232 standard, 38.4 kbaud  
Optional 10/100 Ethernet |
| CONNECTORS | 7 SMB for trigger, gate, clock, outputs  
2.5 mm stereo jack for RS-232  
0.25” power connector  
Optional RJ45 for Ethernet |
| INDICATORS | LEDs indicate shot, communications |
| PACKAGING | 4.75” (L) x 4.0” (W) x 1.25” (H) extruded aluminum enclosure |
| CONFORMANCE | OEM product has no UL/FCC/CE compliance requirements  
Designed to meet UL/FCC/CE requirements |