

Digital Delay/Pulse Generator

DG645 — Digital delay and pulse generator (4 or 8 channels)



DG645 Digital Delay/Pulse Generator

- **4 pulse, 8 delay outputs (opt.)**
- **<25 ps rms jitter**
- **Trigger rates to 10 MHz**
- **Precision rate generator**
- **Easy synchronization with 80 MHz mode locked lasers**
- **Fast transition times**
- **Ovenized crystal or Rb timebase (opt.)**
- **Ethernet, GPIB and RS-232 interfaces**

• **DG645 ... \$4295 (U.S. list)**

The DG645 is a versatile digital delay/pulse generator that provides precisely defined pulses at repetition rates up to 10 MHz. The instrument offers several improvements over older designs — lower jitter, higher accuracy, faster trigger rates, and more outputs. The DG645 also has Ethernet, GPIB and RS-232 interfaces for computer or network control of the instrument.

Delay Generator Timing

All digital delay generators measure time intervals by counting cycles of a fast clock (typically 100 MHz). Most digital delay generators also have short programmable analog delays to achieve time intervals with finer resolution than the clock period. Unfortunately, one clock cycle of timing indeterminacy (typically 10 ns) can occur if the trigger is not in phase with the clock.

The DG645 eliminates timing indeterminacy by measuring the timing of triggers with respect to the internal clock and compensating the analog delays. This approach reduces the jitter by about 100× and allows the internal rate generator to operate at any rate — not just a sub-multiple of the clock frequency.

Triggering

The DG645 has many trigger modes. An internal rate generator, with less than 100 ps period jitter, may be set