Accessories

1. With BNC connectors
HP 15104A Pulse Adder/Splitter: 50 ohm delta network, rise time 150 ps, 6 dB insertion loss, 2 W
HP 15116A Pulse Inverter: 50 ohm pulse transformer, 5% droop (500 ns pulse), 0.3 dB insertion loss, 0.75 W
HP 15115A Splitter-Inverter: 50 ohm delta network with pulse transformer in one output. Output skew: 1 ns, other specs as HP 15104A/15116A.
2. With SMA connectors
HP 11667B Pulse Adder/Splitter: 50 ohm series network, 26.5 GHz bandwidth, 6 dB insertion loss, 0.5 Ω

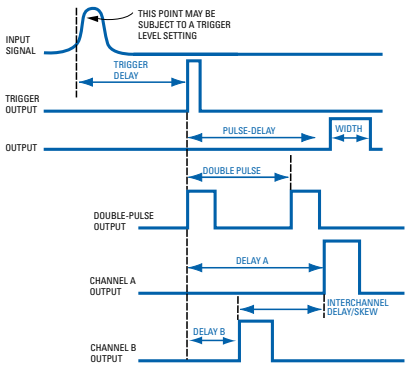
Transition Time Converters:

These components are for use when a very smooth pulse is needed, or when the stimulus is too fast for the DUT (as evidenced by excessive cross-talk, ringing, etc). The converters use a patented absorption technique for minimum reflection and to allow cascading.

Model	Output Transition
HP 15435A	150 ps
HP 15432B	250 ps
HP 15433B	500 ps
HP 15434B	1 ns
HP 15438A	2 ns

Pulse Parameter Definitions of Terms Used in Instrument Specifications

Time Reference Point: Median (50% amplitude point on pulse edge).
Pulse Period: The time interval between the leading edge medians of consecutive trigger output pulses.
Trigger Delay: Interval between trigger point of input signal and the trigger output pulse's leading-edge median. Applies in trigger, external width, gate and burst modes.

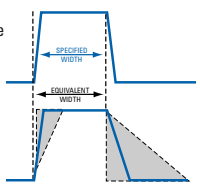


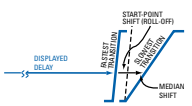
Pulse Delay: Interval between leading-edge medians of trigger-output pulse and output pulse.
Double-Pulse: Interval between leading-edge medians of the double-pulse.
Interchannel Delay/Skew: Interval between corresponding leading-edge medians.
Pulsewidth: Interval between leading and trailing-edge medians.

Additional Information for Pulse Generators with Variable Transition Times

Pulsewidth: The specified and displayed value are those which are obtained with the fastest edges, essentially equal to the interval from the start of the leading edge to the start of the trailing edge.

By designing the pulse edges so that they turn about their start points, the interval from leading-edge start to the trailing-edge start stays unchanged* when transition times are varied. This is more convenient for programming, and the width display is easy to interpret.

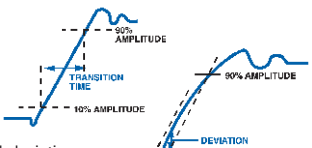




* In practice, start points may shift with changes in transition time.

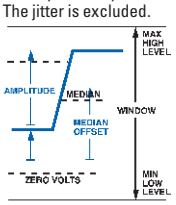
Delay: The specified and displayed values are those obtained with the fastest leading edge. For a slower edge, the actual delay exceeds the displayed delay by the combined shift of the start point and the median.

Transition Time: Interval between the 10% and 90% amplitude points on the leading/trailing edge.

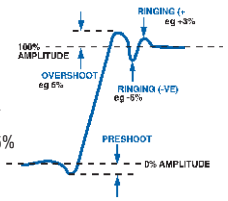


Linearity: Peak deviation of an edge from a straight line through the 10% and 90% amplitude points, expressed as a percentage of pulse amplitude.
Jitter: Short-term instability of one edge relative to a reference edge. Usually specified as an rms value, which is one standard deviation or "sigma". If the distribution is assumed to be Gaussian, six sigma represents 99.74% of the peak-to-peak jitter.

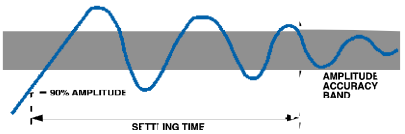
The reference edge for the period jitter is the previous leading edge, whereas the reference edge for the delay jitter is the leading edge of the trigger output. Width jitter is the stability of the trailing edge with regard to the leading edge.
Stability: Long-term average instability over a specific time, for example, an hour, or a year. The jitter is excluded.
Pulse Amplitude: Pulse output is specified as pulse top and pulse base (usually referred to as high level and low level), or as peak-to-peak amplitude and median offset. A "window" specification shows the limits within which the pulse can be positioned.



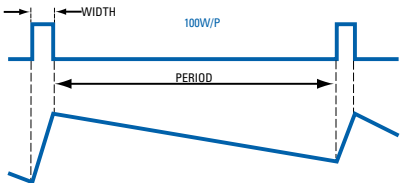
Preshoot, Overshoot, Ringing: Preshoot and overshoot are peak distortions preceding/following an edge. Ringing is the positive-peak and negative-peak distortion, excluding overshoot, on pulse top or base. A combined preshoot overshoot, ringing specification of e.g. ±5% implies:
- Overshoot/undershoot <5%
- Largest pulse top oscillation < ±5% of pulse amplitude



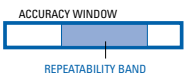
Settling Time: Time taken for pulse levels to settle within a level specification, measured from a 90% point on the leading edge.



Duty Cycle: Percentage ratio of pulsewidth to period. In pulse/function generators, this term is also used to define sine and triangle symmetry. Note that in pulse generators, this is a secondary parameter derived from the period and width settings. The duty cycle achieved is therefore subject to width and period accuracies.



Output Impedance/Resistance: Effective pulse source impedance/dc resistance.
Reflection Coefficient: Reflection at the pulse generator output expressed as a percentage of the incident pulse amplitude. (Test pulse edges correspond to the generator's fastest transitions.)
Repeatability: When an instrument operates under the same environmental conditions and with the same settings, the value of a parameter will lie within a band inside the accuracy window. Repeatability defines the width of this band.



HP-IB Programming Times

Listen Time: The time an instrument occupies the bus to receive and verify a message. The NRFD signal is active during this period.

Settling Time: The time taken by the instrument to execute an HP-IB message and for the output to settle within the accuracy specification. NRFD inactive.

Execution Time: The sum of Listen Time and Settling Time.

Talk Time: The time an instrument occupies the bus to output a specified string. Output data is typically instrument error status, or current or stored parameters.

For more information, visit our web site:
http://www.hp.com/go/dvt

Applications

Typical application areas are:
- clock distribution
- disk drive testing
- general-purpose logic testing
- laser/optoelectronic testing
- LCD-display testing
- memory/flash memory testing
- Mixed signal/A/D-, D/A converter testing
- Physical research
- Radar/microwave testing
- Transmission test
- Trigger Source for system test

If you would like to learn more about these applications or customer case studies, please refer to the application section under **www.hp.com/go/dvt.**