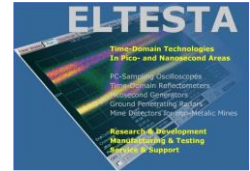


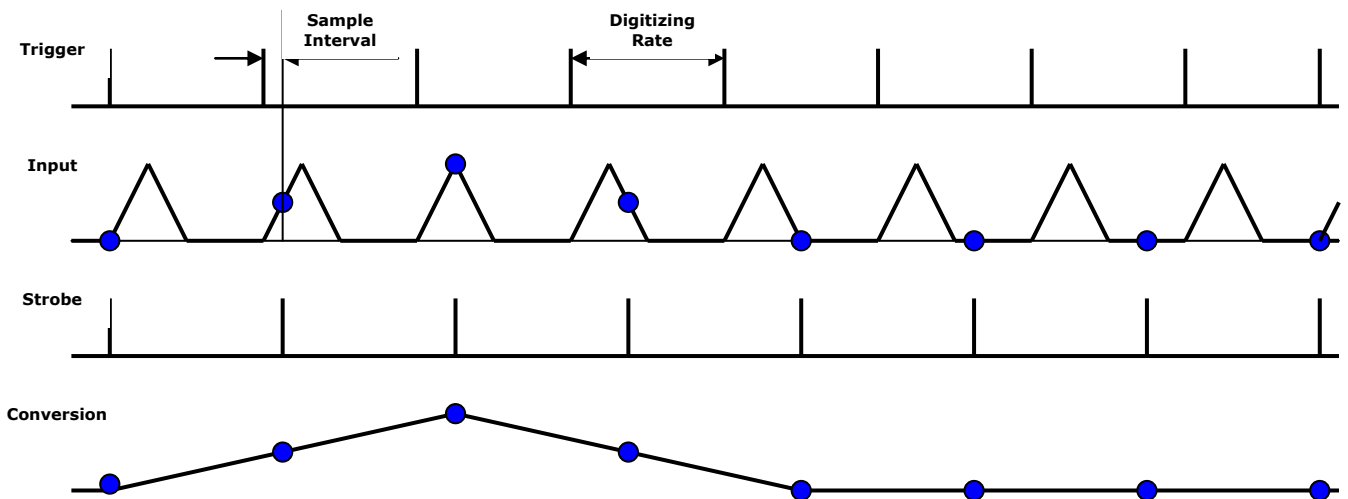
Sampling Techniques used in the PicoScope 9000 Sampling Oscilloscope



Jakovas Rososkis

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Sequential Equivalent Time Sampling



Used in the existing PicoScope 9000.

1. Digitizing Rate.

Digitizing Rate depends on trigger input frequency and HOLDOFF Control. Maximum digitizing rate is 200 kHz.

2. Sample Interval.

Sample Interval defines as a Time Base Window / Record Length. The shortest Sample Interval in the PicoScope 9000 is near 200 fs.

3. Acquisition Time.

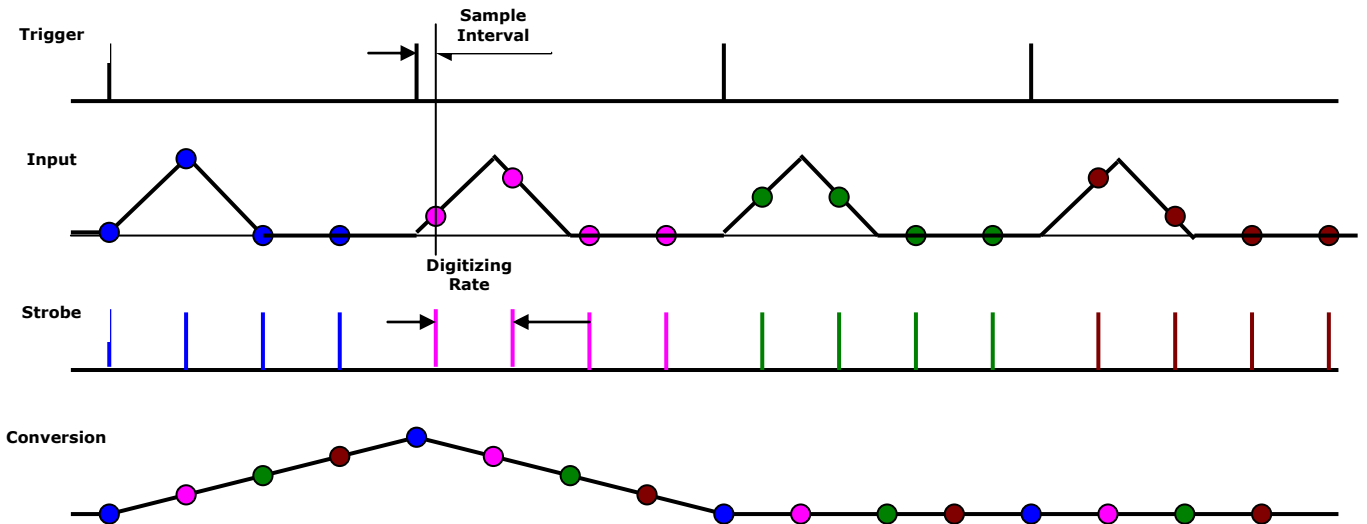
Acquisition Time is defined as Digitizing Rate * Record Length. When input trigger rate is slow enough the Acquisition Time increase.

Example:

Trigger Rate = 50 Hz, Record Length = 500. Acquisition Time= 10 s.

In a new SW Sequential Equivalent Time Sampling should work between 10 ps/div to 999 ns/div.

Combined Equivalent Time Sampling



Combined Equivalent Time Sampling used digitizing with packets.

The new scope starts to use this mode when time base window is at least longer than $1/\text{Digitizing Rate}$. It gives to digitize more than one sample per time base window. In practice it starts when time base is 1 us/div (10 us window) or longer.

Example:

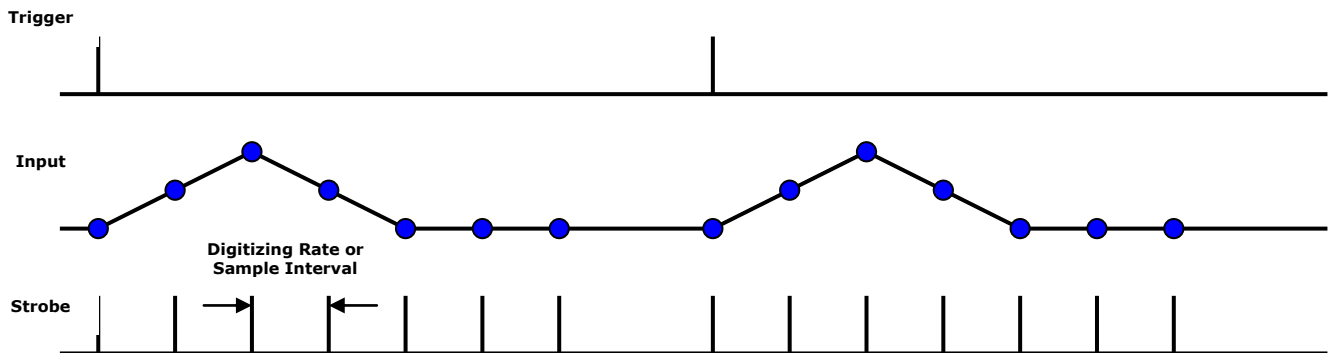
Time/div = 100 us/div. Record Length = 500. Digitizing Rate = 10 us.

Time base window = 100 us/div * 10 = 1 ms. Amount of acquired dots in one packet = 1 ms / 10 us = 100. Amount of packets = 500 / 100 = 5.

Acquisition Time = Trigger Rate * 5.

For Sequential Equivalent Time Sampling it should be Trigger Rate * 500, or 100 times longer.

Sequential Real Time Sampling



Sequential Real Time Sampling

Sequential Real Time Sampling starts when all record length can be acquired during one acquisition.

The shortest Time Base Window is defined as 10 us * 32 (points) = 320 us, or 32 us/div.

The longest time base is 100 ms that gives possibility to acquire 1-s signal.

