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1. Non-stored segments in the Pulse Generator

1.1 Introduction

On top of each segment column a checkbox defines whether or not this segment is going to be *stored*. The purpose of this feature is to save space when long conditioning intervals have to be introduced between important data and when the data of such conditioning segments are not of interest. PATCHMASTER will output the template for such segments, as it will for all other segments (i.e. it would generate constant, ramp, sine, or square segments as specified). Data are also sampled during these periods, but they are removed from the traces prior to storage. Thus, in order to have non-stored segments very long, one has to make sure PATCHMASTER has enough memory (see Configuration Window, Max. Sample Points).

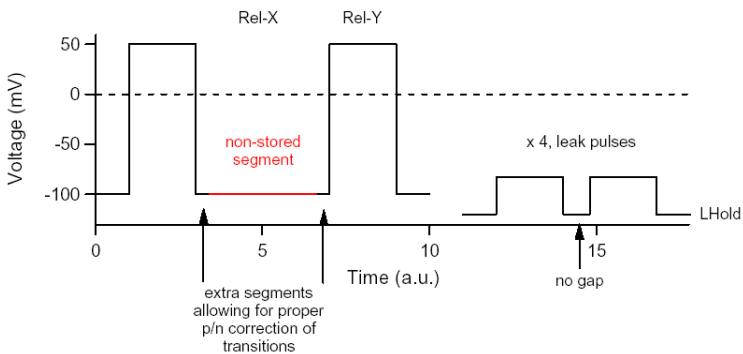
1.2 Using non-stored Segments

A non-stored segment can be a relevant X-segment; it cannot be a relevant Y-segment because there is no data obtained during that segment that could be analyzed later on. In addition, a non-stored segment must not be the Start Segment.

Segments  	<input checked="" type="checkbox"/> Store 1	<input checked="" type="checkbox"/> Store 2	<input checked="" type="checkbox"/> Store 3	<input type="checkbox"/> Store 4	<input checked="" type="checkbox"/> Store 5	<input checked="" type="checkbox"/> Stor  
Segment Class	Constant	Constant	Constant	Constant	Constant	Constant
Voltage [mV]	val -100.	val 50.	val -100.	val -100.	val -100.	val 50.
Duration [ms]	val 10.00	val 20.00	val 4.00	val —	val 4.00	val 20.00
Y-incr. Mode	Increase	Increase	Increase	Increase	Increase	Increase
Y-fact./incr. [mV]	1.00 0.	1.00 0.	1.00 0.	1.00 0.	1.00 0.	1.00 0.
t-incr. Mode	Increase	Increase	Increase	Increase	Increase	Increase
t-Fact./incr. [ms]	1.00 0.00	1.00 0.00	1.00 0.00	2.00 50.00	1.00 0.00	1.00 0.00

ery time course, one has to add these 8 ms to the sequence of durations, yielding 8, 58, 108, 208, 408ms, ...

The latter is easily achieved in the **Online Analysis** by defining a Constant of 8 ms to be added to the incrementing durations of Segment # 4. Alternatively, durations of Segments # 3 and # 5 can be added explicitly.

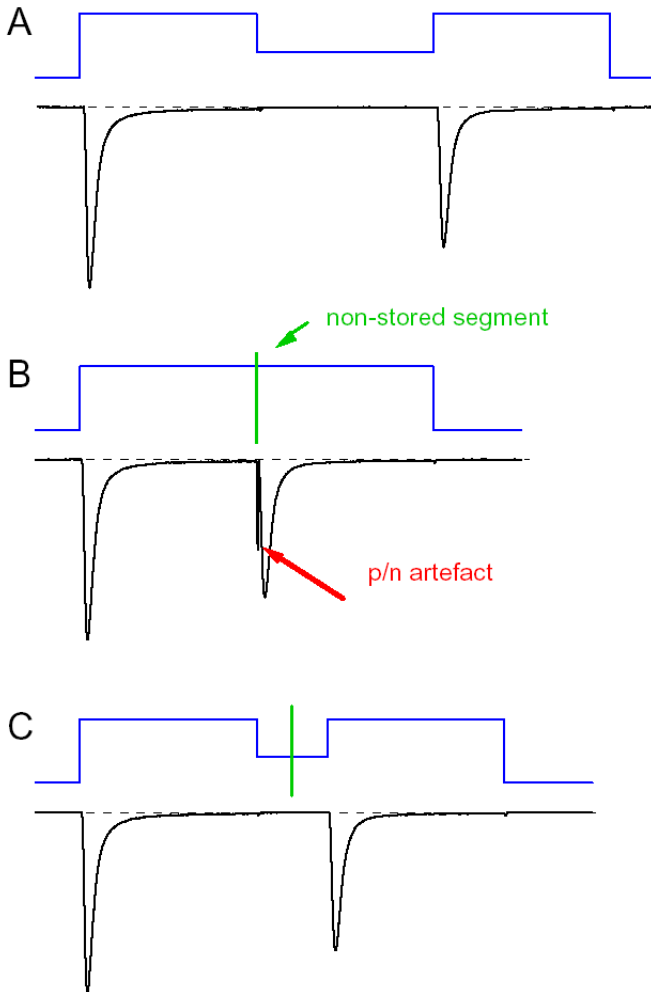


The example show below illustrates the problem described above.

In panels A a pulse protocol of 5 segments elicits sodium currents at -20 mV to cause full inactivation. In segment # 3 at -80 mV channels are partially recovered from inactivation, assayed in segment # 4 by another depolarization.

In panels B segment # 3 is replaced by a non-stored segment (green vertical line). As a result, there are no transitions between segments 2-3 and 3-4 in the p/n pulse and, thus, the capacitive currents are not properly corrected (red arrow).

In panels C this problem is remedied by sandwiching the non-stored segment by short segments of the same voltage yielding proper p/n correction.



Advantage 3. The relevant (stored) segments are displayed in an aligned fashion in the oscilloscope window.