rms_mv.xce

Attributes

```
main_vars: x_in x_out x_cntrl
iparms: n_samples=20
rparms: delt=1
```

Description

`rms_mv.gce` can be used to compute a "moving" rms value of a signal `x_in`, with `x_out` as the output. It is triggered by a clock signal at `x_cntrl`. The average value `x_out` gets updated for each pulse at `x_cntrl`. Typically, one would keep the clock period much smaller than the time period over which the rms value is desired. The parameters have the following meaning:

`n_samples:` Number of samples for which the rms value of `x_in` is to be computed.

`delt:` Time interval between the clock pulses applied at `x_cntrl`.

AC behaviour is not implemented.

The following circuit file shows how `rms_mv.xce` can be used. The output obtained is shown in Fig. 1.

```
begin_circuit
#  signal to be averaged:
   xelement type=srcac y=x a=1 f_hz=50 t0=0 dc=0.5

#  triggering pulses:
   xelement type=clock y=clk x_high=1
+     t1=0.1m t2=0.1m dt1=0.001m dt2=0.001m i0=0 t0=0

   xelement type=rms_mv x_in=x x_out=x_rms_mv x_cntrl=y1
+     delt=0.2m n_samples=100

   outvar:
+     x=xvar_of_x
+     clk=xvar_of_clk
+     x_rms_mv=xvar_of_x_rms_mv
end_circuit

begin_solve
```

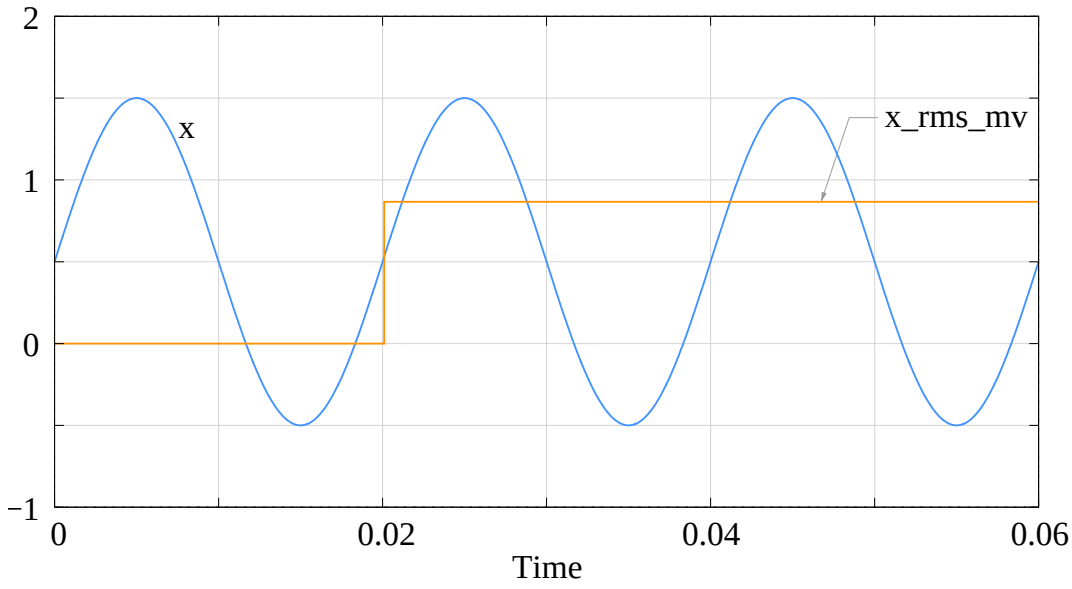

Figure 1: Waveforms obtained with `rms_mv.xce`.

```
   solve_type=trns
   begin_output
      filename=xtest35.dat limit_lines=100000
      variables: x clk x_rms_mv
   end_output
   method: itmax_trns=100000
+    forward_euler=yes
+    t_start=0 t_end=60m delt_const_x=0.06m delt_min_x=0.1u
+    n_wrtiterno=1000
end_solve
```