

average.gce

Attributes

mainvars: x_in x_out x_cntrl

Description

`average.gce` can be used to produce the average value of a signal `x_in`, with the general variable `x_out` as its output. It is triggered by a clock signal at `x_cntrl`. The average value of `x_in` computed for a given period (marked by positive clock edges at `x_cntrl`) is made available at the output (`x_out`) in the following period.

AC behaviour is not implemented.

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

```
title: testing of average.gce and rms.gce

begin_circuit

# triggering pulses:
gelement type=clock y=y g_high=1
+   t1=2m t2=8m dt1=0.001m dt2=0.001m i0=1 t0=0

# signal to be averaged:
gelement type=vsrcac vxn=x a=1 f_hz=50 t0=0 phi=0

gelement type=average x_in=x x_out=x_avg x_cntrl=y
gelement type=rms      x_in=x x_out=x_rms x_cntrl=y

outvar:
+   x=var_of_x
+   x_avg=var_of_x_avg
+   x_rms=var_of_x_rms
+   y=var_of_y
end_circuit

begin_solve
  solve_type=startup
  initial_sol initialize
end_solve
```

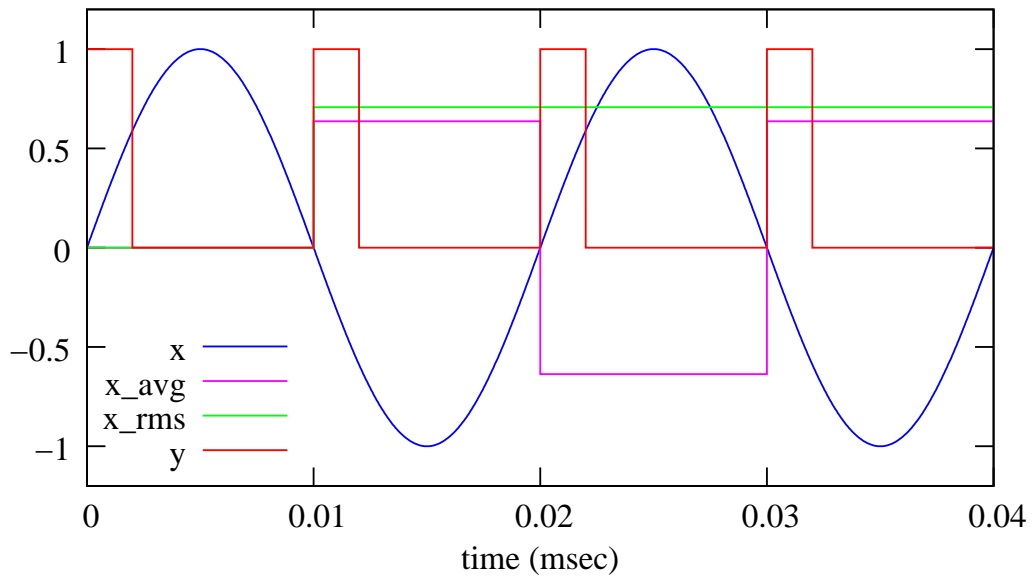


Figure 1: Waveforms obtained with `average.gce`.

```
begin_solve
  solve_type=trns
  initial_sol previous
  begin_output
    filename=avg1_gce.dat limit_lines=100000
    variables: x x_avg x_rms y
  end_output
  method: itmax_trns=100000
+   back_euler=yes
+   t_start=0 t_end=60m delt_const=0.06m delt_min=0.1u
+   n_wrtiterno=1000
end_solve

end_cf
```