delay_discrete.xbe

Attributes

```
xbe name=delay_discrete evaluate=yes save_history=yes allow_ssw=no
#
# The input (x) is assumed to be a sampled quantity (or a function
# of sampled quantities). The output is a delayed version of the
# input. (delay of up to 3 periods is allowed)
#
Jacobian: variable
input_vars: x
output_vars: y
aux_vars:
iparms: n_delay=1
sparms:
rparms:
+   T=10u
+   t0=0
+   dt=1u
+   y_current=0
+   y_old_1=0
+   y_old_2=0
+   y_old_3=0
+   y_old_4=0
+   epsl1=0
+   epsl2=0
stparms: y_st=0
igparms:
outparms: x y
```

Description

    `sampler.xbe` is used to delay a sampler signal (`x`) by 1, 2, or 3 clock periods. The parameters have the following meaning:

T: clock period.

n_delay: Number of clock periods by which `x` should be delayed. `n_delay` can be 1, 2, or 3.

t0: offset which determines the position of the first sample. It should be the same as the `t0` value assigned to the `sampler.xbe` element which was used for sampling.

dt: `dt` is related to the resolution of the output $y(t)$. It should be small as compared to `T`.

    `x` and `y` are made available as output variables. Fig. 1 shows waveforms obtained with `delay_discrete.xbe`.
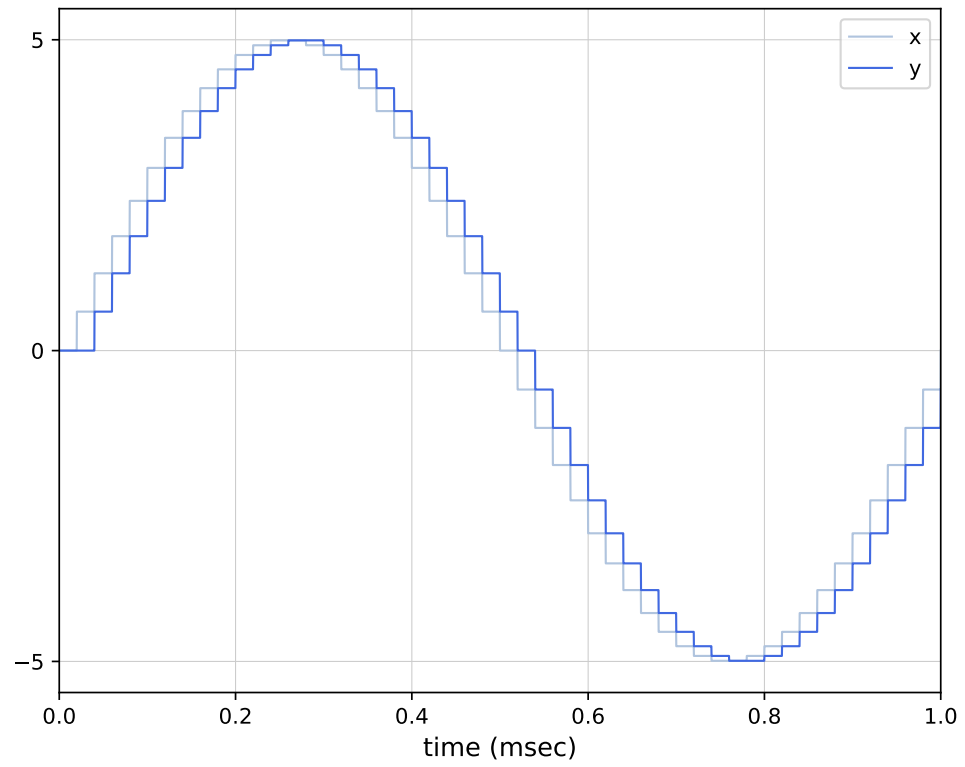
Figure 1: Waveforms obtained with `delay_discrete.xbe`, with `n_delay = 1`, $T = 0.02\text{m}$, $t0 = 0$, $dt = 0.2\text{u}$.