

# delay\_discrete\_1.xbe

## Attributes

```
xbe name=delay_discrete_1 save_history=yes allow_ssw=no
+ delay=yes
#
# 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 sampler_index=0
sparms:
rparms:
+ y_current=0
+ y_old_1=0
+ y_old_2=0
+ y_old_3=0
+ y_old_4=0
stparms: y_st=0
igparms:
outparms: x y
```

## Description

delay\_discrete\_1.xbe is used to delay a sampled signal (x) by 1, 2, or 3 clock periods. The parameters have the following meaning:

**n\_delay:** Number of clock periods by which x should be delayed. n\_delay can be 1, 2, or 3.

**sampler\_index:** Index of the sampler\_1.xbe associated with this element.

x and y are made available as output variables.

Each delay\_discrete\_1.xbe is associated with a sampler\_1.xbe, the mapping being established by the two elements having the same index value. In other words, the sampler\_index value of the delay\_discrete\_1.xbe is the same as the index value of the associated sampler\_1.xbe. Fig. 1 shows a circuit example using sampler\_1.xbe and delay\_discrete\_1.xbe, and Fig. 2 shows the waveforms.

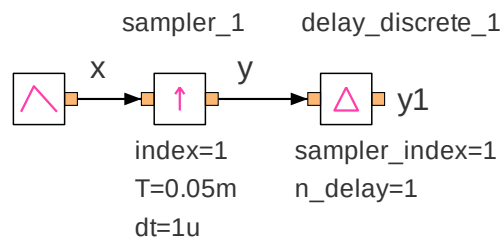


Figure 1: Schematic diagram of a sample application of sampler\_1.xbe and delay\_discrete\_1.xbe.

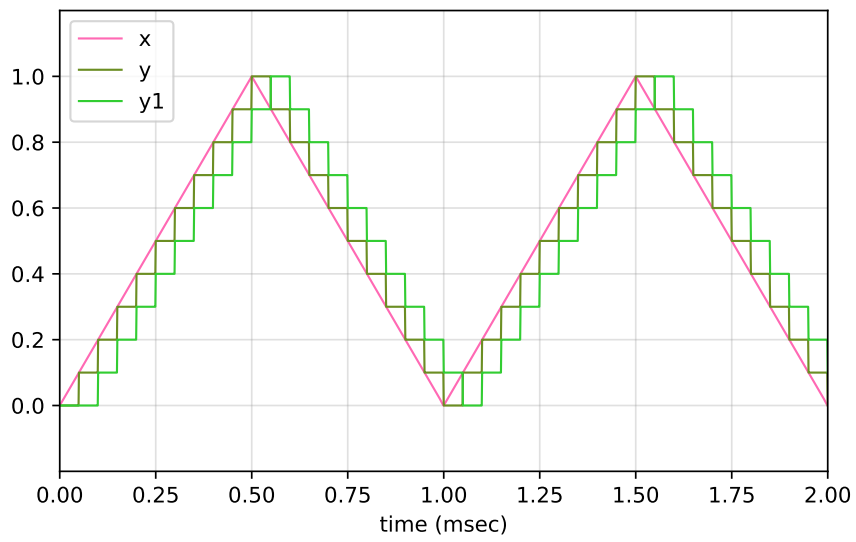


Figure 2: Waveforms obtained with the circuit of Fig. 1.