

monostable_1.xbe

Attributes

```
xbe name=monostable_1 evaluate=yes limit_tstep=yes save_history=yes allow_ssw=no
#
# when an active edge is detected at x, a pulse of width T is produced
# at the output.
#
Jacobian: variable
input_vars: x
output_vars: y
aux_vars:
iparms:
+ active_pos_edge=1
+ active_neg_edge=0
sparms:
rparms:
+ x_low=0
+ x_high=1
+ y_low=0
+ y_high=1
+ T=0.1
+ x_prev=0
+ t2=0
+ x_cross=0
+ y_cross=0
+ eps1=0
+ eps11=0
+ y_half=0
stparms:
igparms:
outparms: x y
```

Description

monostable_1.xbe is used to generate a pulse of width T when an active edge (low-to-high or high-to-low) is detected at the input (x). signal by a delay interval Δ . Its behaviour is controlled by integer parameters active_pos_edge, active_neg_edge, and real parameters T, x_low, x_high, y_low, y_high.

The parameters have the following meaning.

T: Duration of the output pulse.

active_pos_edge: 1 for positive edge triggered operation, 0 otherwise.

active_neg_edge: 1 for negative edge triggered operation, 0 otherwise.

x_low: Low level in input waveform.

x_high: High level in input waveform.

y_low: Low level in output waveform.

y_high: High level in output waveform.

x and y are made available as output variables. Fig. 1 illustrates the working of this element.

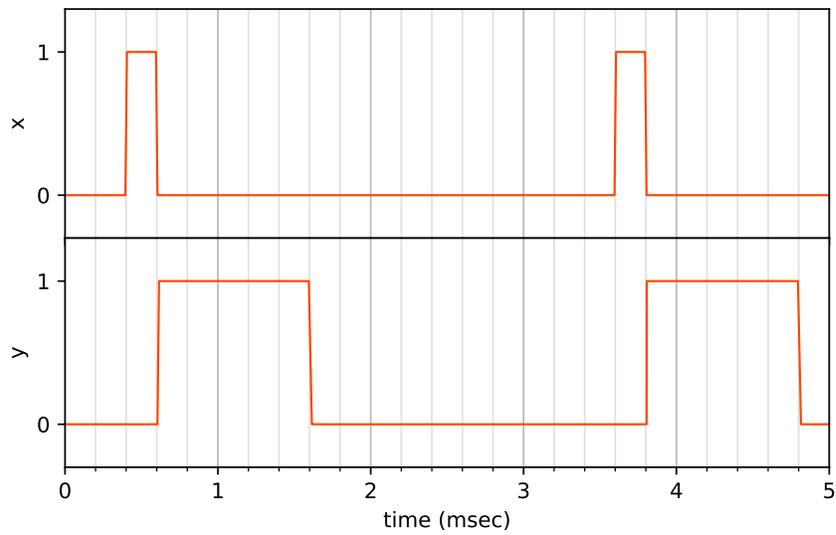


Figure 1: Input $x(t)$ and output $y(t)$ for monostable_1.xbe. The parameter values are $T = 1m$, $\text{active_pos_edge} = 0$, $\text{active_neg_edge} = 1$, $x_{\text{low}} = 0$, $x_{\text{high}} = 1$, $y_{\text{low}} = 0$, $y_{\text{high}} = 1$.