integrator_reset_1.xbe

Attributes

```
xbe name=integrator_reset_1 integrate=yes
+ limit_tstep=yes save_history=yes allow_ssw=no reset=yes
# y = k int (x dt)
# output is reset when an active edge at r is detected.
Jacobian: variable
input_vars: x r
output_vars: y
aux_vars:
iparms:
+  active_pos_edge=1
+  active_neg_edge=0
sparms:
rparms:
+  k=1
+  r_high=1
+  delt_min=0.1u
+  y_reset=0.0
+  r_prev=0
+  r_cross=0
stparms: y_st=0
igparms: y_ig=0
outparms: x y r
```

Description

integrator_reset_1 gives $y = \int k\,x\,dt$. The parameter y_st provides the start-up value for y in start-up simulation.

A reset facility is also provided. If active_pos_edge is 1, and a positive edge is encountered at r, the integrator output y is reset to y_reset. Similarly, if active_neg_edge is 1, and a negative edge is encountered at r, the integrator output y is reset to y_reset.

The parameter r_high denotes the high level of r. A time point, delt_min after the current time, is added after the active edge is detected.

r, x, y are made available as output variables. Fig. 1 illustrates the working of this element, when a constant input $x = 1$ is appled.

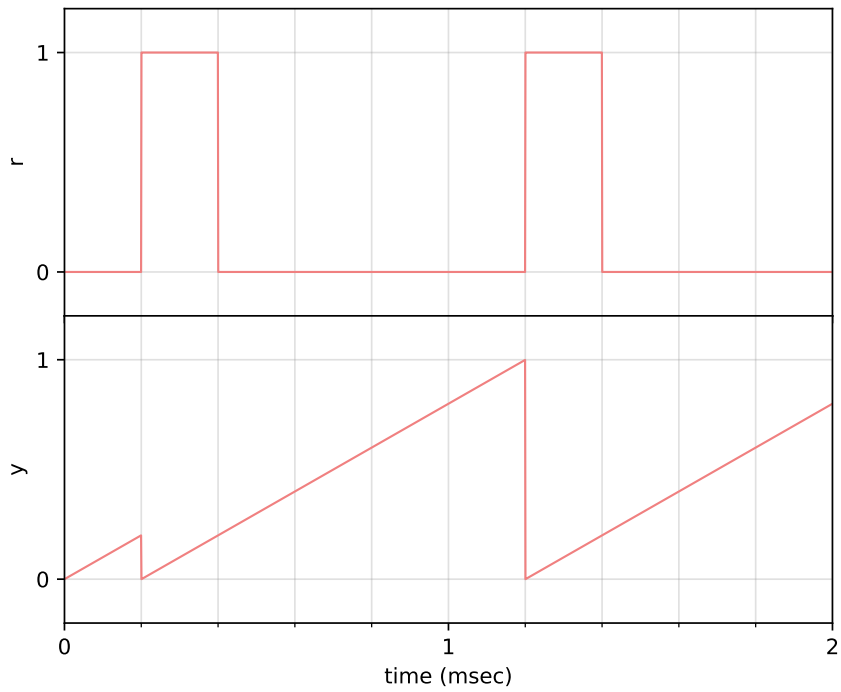

Figure 1: Input $x(t)$ and output $y(t)$ for `integrator_reset_1.xbe`. The parameter values are `k` = `1e3`, `active_pos_edge` = `1`, `active_neg_edge` = `0`, `y_reset` = `0`, `r_high` = `1`, `delt_min` = `1u`.