clock_3ph.xbe

Attributes

```
xbe name=clock_3ph evaluate=yes limit_tstep=yes
Jacobian: constant
input_vars:
output_vars: y
aux_vars:
iparms:
+  index1=1
+  flag_frequency=1
+  flag_period=0
sparms:
rparms:
+  x_low=0
+  x_high=1.0
+  frequency=1k
+  T=1m
+  D=0.5
+  alpha=0
+  dt=0.1u
+  T1=1
+  T2=1
+  t0=0
+  dt1=0.01
+  dt2=0.01
+  L0=0
+  L1=0
+  L2=0
+  tk1=0
+  tk2=0
+  tk3=0
+  tk4=0
+  tk5=0
+  slope1=0
+  slope2=0
+  epsl=0
stparms:
igparms:
outparms: y
```

Description

`clock_3ph.xbe` is useful for generating gate signals in 3-phase applications. It is a square wave source with `y` as its output. Its behaviour is controlled by integer parameters `index1`, `flag_frequency`, `flag_period`, and real parameters `frequency`, `T`, `x_low`, `x_high`, `D`, `alpha`, `dt`. Each period of $y(t)$ has two intervals, `T1` and `T2`. $y(t)$ is equal to `x_high` in the first (`T1`) interval, and `x_low` in the second (`T2`) interval. The parameters have the following meaning:

`frequency`: Clock frequency. This parameter applies if `flag_frequency` is 1.

`T`: Clock period. This parameter applies if `flag_period` is 1.

`D`: Duty ratio; e.g., `D=0.5` means a duty ratio of 50%.

`index1`: `index1`, which can take values from 1 to 6, is used to compute an "offset" time interval, with 1 corresponding to 0 and 6 to $\frac{5 \times 60}{360} T$, where T is one period (see Figs. 1 and 2).

`alpha:` `alpha` is used to compute an additional "offset" time interval, with one period corresponding to 360°.

`dt:` Width of the transition from the `T1` to `T2` phase and *vice versa*.

`y` is made available as an output variable. $y(t)$ is shown in the following figures for different values of `index1`.

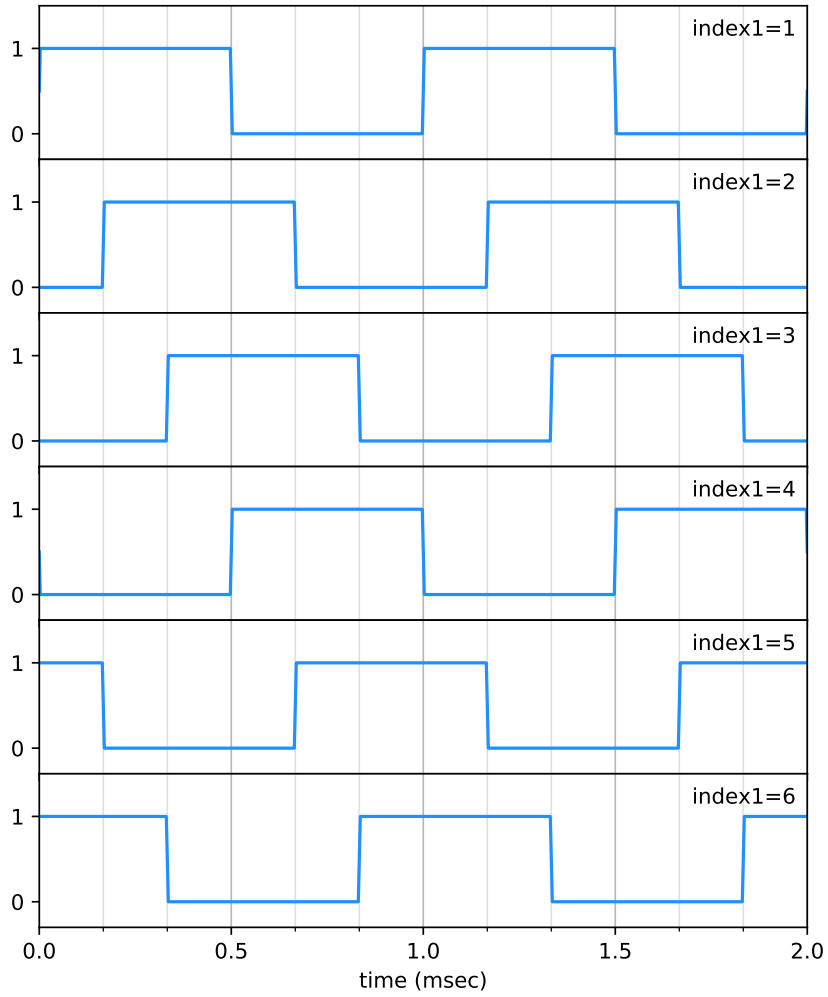

Figure 1: $y(t)$ obtained with `flag_frequency` = 1, `flag_period` = 0, `frequency` = `1k`, `x_low` = 0, `x_high` = 1, `D` = 0.5, `alpha` = 0, `dt` = `0.005m`, and different values of `index1`.

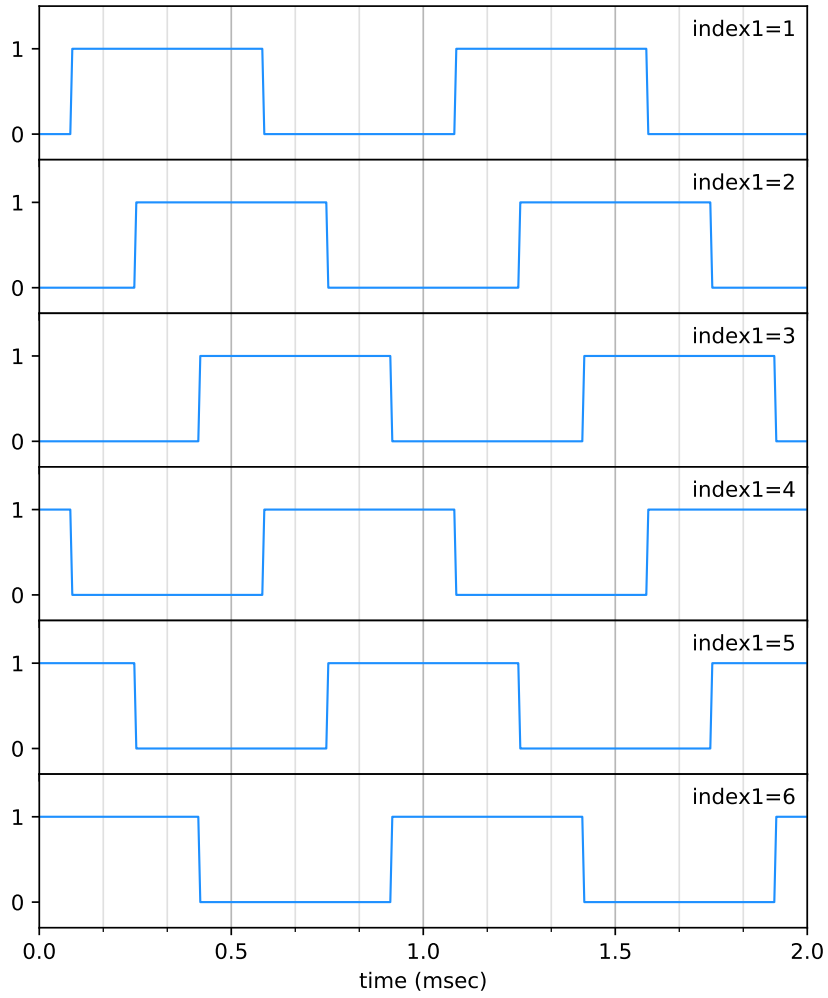

Figure 2: $y(t)$ obtained with `flag_frequency` = 1, `flag_period` = 0, `frequency` = 1k, `x_low` = 0, `x_high` = 1, `D` = 0.5, `alpha` = 30, `dt` = `0.005m`, and different values of `index1`.