

## xfmr\_level0\_1ph\_2\_2.ebe

### Attributes

```
ebe name=xfmr_level0_1ph_2_2
#
# two primary windings, two secondary windings
# (No magnetizing inductance)
#
Jacobian: constant
nodes: p1_p p1_n p2_p p2_n s1_p s1_n s2_p s2_n
aux_vars: cur_p1_p cur_p2_p cur_s1_p cur_s2_p
iparms:
sparms:
rparms:
+ p1_turns=1
+ p2_turns=1
+ s1_turns=1
+ s2_turns=1
stparms:
+ ip10=0 ip20=0 is10=0 is20=0
igparms:
outparms: ip1 ip2 is1 is2 vp1 vp2 vs1 vs2
```

### Description

xfmr\_level0\_1ph\_2\_2.ebe is a transformer with two primary and two secondary windings. It incorporates the following equations.

$$\frac{V_{p1}}{N_{p1}} = \frac{V_{s1}}{N_{s1}}, \quad (1)$$

$$\frac{V_{p1}}{N_{p1}} = \frac{V_{s2}}{N_{s2}}, \quad (2)$$

$$\frac{V_{p1}}{N_{p1}} = \frac{V_{p2}}{N_{p2}}, \quad (3)$$

$$N_{p1}i_{p1} + N_{p2}i_{p2} + N_{s1}i_{s1} + N_{s2}i_{s2} = 0, \quad (4)$$

where  $N_{p1}$ ,  $N_{p2}$ ,  $N_{s1}$ ,  $N_{s2}$  are given by the real parameters p1\_turns, p2\_turns, s1\_turns, s2\_turns, respectively.