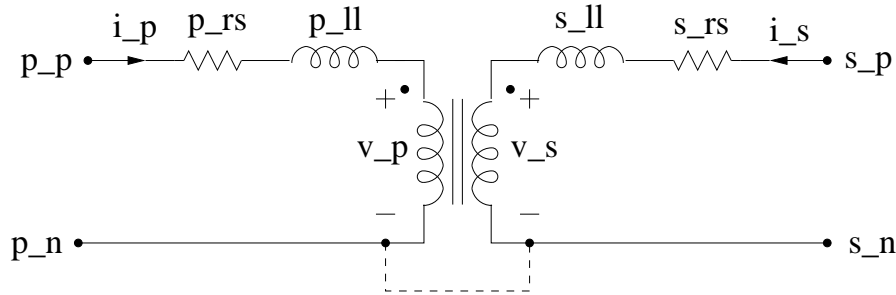


xfmr_level1_1ph.ece



Attributes

```

mainnodes: p_p p_n s_p s_n
outvar:
+   v_p=v_p_of_x0
+   v_s=v_s_of_x0
+   i_p=cur(p_p)_of_x0
+   i_s=cur(s_p)_of_x0
rparms:
+   p_turns=1
+   s_turns=1
+   p_rs=1m
+   p_ll=1n
+   s_rs=1m
+   s_ll=1n

```

Description

`xfmr_level1_1ph.ece` includes an ideal transformer model with coil series resistances and leakage inductances taken outside (see figure). `p_XXX` and `s_XXX` are used to denote node and parameter names on the primary and secondary side, respectively. For example, `p_turns` and `s_turns` are the number of turns on the primary and secondary side, respectively. Currents and voltages shown in the figure are made available as output variables. The model equations incorporated for the ideal transformer are:

$$\frac{V_p}{N_p} = \frac{V_s}{N_s},$$

$$N_p i_p + N_s i_s = 0.$$

Note that, by assigning suitably small values to the coil series resistances and leakage inductances, this element can be used as an ideal transformer.

The dashed connection between the two sides (see figure) should be made *externally* in the circuit file if there is otherwise no connection between the two sides. This is required because the circuit as a whole can have only one reference node. If the two sides are completely isolated, a part of the circuit will remain floating, leading to a singular matrix.

The dashed wire does not change the circuit behaviour since it does not carry a current, there being no return path.

AC behaviour is not implemented.