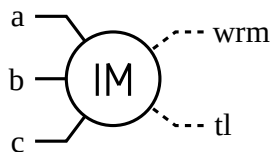
indmc.ece



Attributes

```
  mainnodes: a b c
  outvar:
+   ia=cur(a)_of_im0
+   ib=cur(b)_of_im0
+   ic=cur(c)_of_im0
+   tem=tem_of_im0
  main_var:
+   wrm
+   tl
  iparms: poles=4
  rparms:
+   rs=0.435
+   lls=0.002
+   lm=0.0693
+   llr=0.002
+   rr=0.816
+   j=0.089
+   wref=0
```

Description

`indmc.ece` is an induction machine with terminals `a`, `b`, `c`. The integer and real parameters

and main variables (`tem` and `tl`) are used to evaluate the model equations given below.

$$
\begin{aligned}
i_{ds} &= \frac{l_r}{l_m l_e}\psi_{ds} - \frac{1}{l_e}\psi_{dr} \ , \\
i_{dr} &= \frac{1}{l_m}\psi_{ds} - \left(\frac{l_{ls}}{l_m}+1\right) \ i_{ds} \ , \\
i_{qs} &= \frac{l_r}{l_m l_e}\psi_{qs} - \frac{1}{l_e}\psi_{qr} \ , \\
i_{qr} &= \frac{1}{l_m}\psi_{qs} - = \left(\frac{l_{ls}}{l_m}+1\right) \ i_{qs} \ , \\
T_{em} &= \frac{3}{4} \ l_m \ = (i_{qs} i_{dr} + i_{ds} i_{qr}) \ , \\
\omega_r &= \frac{P}{2} \ \omega_{rm} \ , \\
\dot{\psi}_{ds} &= v_{ds} - r_s i_{ds} \ , \\
\dot{\psi}_{qs} &= v_{qs} - r_s i_{qs} \ , \\
\dot{\psi}_{dr} &= -\omega_r \psi_{qr} - r_r i_{dr} \ , \\
\dot{\psi}_{qr} &= \omega_r \psi_{dr} - r_r i_{qr} \ , \\
\dot{\omega}_r &= \frac{P}{2} \ \frac{T_{em} - T_L}{J} \ .
\end{aligned}
$$

The three terminal currents `ia`, `ib`, `ic`, and the electromechanical torque `tem` are made available as output variables.

AC behaviour is not implemented.