

## indmc2.gce

### Attributes

```
mainvars:
+   wrm vds vqs tl
outvar:
+   tem=tem_of_im0
+   psids=psids_of_im0
+   psidr=psidr_of_im0
+   psiqs=psiqs_of_im0
+   psiqr=psiqr_of_im0
+   ids=ids_of_im0
+   idr=idr_of_im0
+   iqs=iqs_of_im0
+   iqr=iqr_of_im0
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

indmc2.gce is an induction machine with the following model equations:

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

Note that `indmc2.gce` uses the same model equations as `indmc1.gce`. However, many of the “internal” variables are treated in `indmc2.gce` as auxiliary variables. The quantities `tem`, `psids`, `psidr`, `psiqs`, `psiqr`, `ids`, `idr`, `iqs`, `iqr` are made available as output variables.

AC behaviour is not implemented.