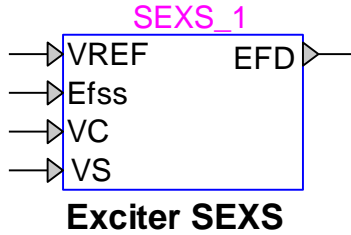


Exciters and Governors: Exciter SEXS



Exciters and Governors: Exciter SEXS	1
1 Description.....	1
1.1 Pins	1
1.2 Parameters.....	1
1.2.1 Data tab	1
1.2.2 Exciter tab	1
2 Initial conditions	2

Tshibain Tshibungu, Jean Mahseredjian, 9/1/2016 7:56 PM

1 Description

This device is the implementation of a simplified excitation system model. Implementation details can be viewed by inspecting the subcircuit of this device.

1.1 Pins

This device has 5 pins:

Pin name	Type	Description	Units
VREF	Input	Reference voltage of the stator terminal voltage	pu
Efss	Input	Steady-state field voltage at $t = 0$, for initialization	pu
VC	Input	Terminal voltage of synchronous machine, transducer output	pu
VS	Input	Power System Stabilizer signal	pu
EFD	Output	The field voltage signal	pu

1.2 Parameters

Typical data is used for default parameters.

1.2.1 Data tab

The parameters on the Data tab are:

1. **Time constant T_A** : time constant of the lead-lag compensator
2. **Time constant T_B** : time constant of the lead-lag compensator

1.2.2 Exciter tab

The exciter tab allows to input:

1. **Gain K** : exciter gain
2. **Time constant T_E** : exciter time constant

3. **Maximum exciter output E_{MAX} :** maximum exciter voltage output
4. **Minimum exciter output E_{MIN} :** minimum exciter voltage output

2 Initial conditions

The reference voltage V_{REF} can be manually or automatically set by connecting or not connecting the input signal V_{REF} , respectively. When V_{REF} is not connected (the signal is zero), the reference voltage is internally found from the steady-state solution. When V_{REF} is connected, its initial value must match the per unit steady-state voltage of the stator terminal voltage, since otherwise the generator voltage will not start at the actual steady-state.