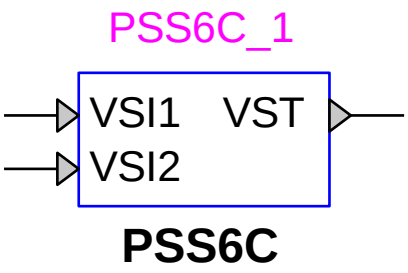
Exciters and Governors: Power System Stabilizer PSS6C



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1 Description

This device is an implementation of the IEEE type PSS6C power system stabilizer model. This device is implemented as described in [1]. Implementation details can be viewed by inspecting the subcircuit of this device.

1.1 Pins

This device has 3 pins:

Pin name	Type	Description	Units
VSI1	Input	Electrical power	pu
VSI2	Input	Speed deviation	pu
VST	Output	PSS output	pu

1.2 Parameters

The default set of parameters can be found in [1].

1.2.1 Data tab

The parameters on the Data tab are:

1. **Gain K_{S1}**: PSS gain for input channel 1
2. **Time constant T_1**: PSS transducer time constant for input channel 1
3. **Time constant T_3**: PSS time constant for input channel 1
4. **Gain K_{S2}**: PSS gain for input channel 2
5. **Time constant T_2**: PSS transducer time constant for input channel 2
6. **Time constant T_4**: PSS time constant for input channel 2

7. **Time constant M_{acc}**: PSS washout time constant for input channel 2
8. **Time constant T_D**: PSS washout time constant
9. **Gain K_0**: PSS canonical gain 0
10. **Gain K_1**: PSS canonical gain 1
11. **Gain K_2**: PSS canonical gain 2
12. **Gain K_3**: PSS canonical gain 3
13. **Gain K_4**: PSS canonical gain 4
14. **Gain K_{I3}**: PSS third block gain
15. **Gain K_{I4}**: PSS fourth block gain
16. **Gain K_S**: PSS main gain
17. **Time constant T_{I1}**: PSS time constant (first block)
18. **Time constant T_{I2}**: PSS time constant (second block)
19. **Time constant T_{I3}**: PSS time constant (third block)
20. **Time constant T_{I4}**: PSS time constant (fourth block)
21. **Maximum limit V_{SI1max}**: input signal #1 maximum limit
22. **Minimum limit V_{SI1min}**: input signal #1 minimum limit
23. **Maximum limit V_{SI2max}**: input signal #2 maximum limit
24. **Minimum limit V_{SI2min}**: input signal #2 minimum limit
25. **Maximum PSS output V_{STMAX}**: maximum PSS output
26. **Minimum PSS output V_{STMIN}**: minimum PSS output
27. **PSS activation P_{PSSON}**: generator MW threshold for PSS activation
28. **PSS de-activation P_{PSSOFF}**: generator MW threshold for PSS de-activation

2 Initial conditions

The initial output signal is zero from the steady-state solution.

3 References

[1] "IEEE Recommended Practice for Excitation System Models for Power System Models for Power System Stability Studies," IEEE Standard 421.5-2016.