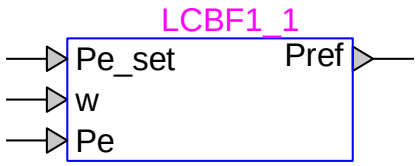
Exciters and Governors: Load Controller LCBF1



Load Controller
LCFB1

Exciters and Governors: Load Controller LCBF1 1
1 Description 1
1.1 Pins 1
1.2 Parameters 1
1.2.1 Data tab 1
2 Initial conditions 1
3 References 2

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1 Description

This device is an implementation of a general load controller LCBF1. 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 4 pins:

Pin name	Type	Description	Units
Pe_set	Input	Electrical power set point	pu
w	Input	Mechanical speed	pu
Pe	Output	Electrical power	pu
Pref	Output	Reference to be connected to the turbine	pu

1.2 Parameters

The default set of parameters are obtained from [1].

1.2.1 Data tab

The parameters on the Data tab are:

1. **Time constant T_{Pelec}**: power transducer time constant
2. **Deadband db**: controller deadband
3. **Gain fb**: frequency bias gain
4. **Gain K_p**: proportional gain
5. **Gain K_i**: integral gain
6. **Maximum output I_{rmax}**: maximum output

2 Initial conditions

The initial set point must be equal to the generator electrical power (base for power) at t = 0 s.

3 References

[1] “Dynamic Models for Turbine-Governors in Power System Studies,” Technical report PES-TR1. IEEE Power & Energy Society Jan 2013.