

Bus data:

Parameters - bus1 in SMIB_Controlled.Network

Parameters

General Modifiers

Component
Name: bus1

Class
Path: OpenIPSL.Electrical.Buses.Bus
Comment: Bus model (2014/03/10)

Parameters
displayPF Display voltage values:

Initialization
V.start V_0 Bus voltage magnitude (pu)
angle.start angle_0 deg Bus voltage angle

Power flow data

V_b	400	kV	Base voltage of the bus
V_0	1	1	Voltage magnitude (pu)
angle_0	0	deg	Voltage angle
P_0	1	MW	Active power
Q_0	0	Mvar	Reactive power
S_b	SysData.S_b	MVA	System base power
fn	SysData.fn	Hz	System Frequency

OK Cancel

Parameters - bus2 in SMIB_Controlled.Network

Parameters

General Modifiers

Component
Name: bus2

Class
Path: OpenIPSL.Electrical.Buses.Bus
Comment: Bus model (2014/03/10)

Parameters
displayPF Display voltage values:

Initialization
V.start V_0 Bus voltage magnitude (pu)
angle.start angle_0 deg Bus voltage angle

Power flow data

V_b	400	kV	Base voltage of the bus
V_0	1	1	Voltage magnitude (pu)
angle_0	0	deg	Voltage angle
P_0	1	MW	Active power
Q_0	0	Mvar	Reactive power
S_b	SysData.S_b	MVA	System base power
fn	SysData.fn	Hz	System Frequency

OK Cancel

Parameters - bus3 in SMIB_Controlled.Network

Parameters

General Modifiers

Component
Name: bus3

Class
Path: OpenIPSL.Electrical.Buses.Bus
Comment: Bus model (2014/03/10)

Parameters
displayPF Display voltage values:

Initialization
V.start V_0 Bus voltage magnitude (pu)
angle.start angle_0 deg Bus voltage angle

Power flow data

V_b	400	kV	Base voltage of the bus
V_0	1	1	Voltage magnitude (pu)
angle_0	0	deg	Voltage angle
P_0	1	MW	Active power
Q_0	0	Mvar	Reactive power
S_b	SysData.S_b	MVA	System base power
fn	SysData.fn	Hz	System Frequency

OK Cancel

Parameters - infiniteBus1 in SMIB_Co

Parameters

General Modifiers

Component
Name: infiniteBus1

Class
Path: OpenIPSL.Electrical.Buses.InfiniteBus
Comment: PSAT Infinite Bus

Parameters
displayPF Display power flow results:

Power flow data

V_b	400	kV	Base voltage of the bus
V_0	0.90081	1	Voltage magnitude (pu)
angle_0	0	deg	Voltage angle
P_0	-1998	MW	Active power
Q_0	87.066	Mvar	Reactive power
S_b	SysData.S_b	MVA	System base power
fn	SysData.fn	Hz	System Frequency

OK Cancel

Two winding Transformer:

Parameters

General Modifiers

Component
Name: twoWindingTransformer1

Class
Path: OpenIPSL.Electrical.Branches.PSAT.TwoWindingTransformer
Comment: Modeled as series reactances without iron losses

Power flow

Sb	<input type="text" value="SysData.S_b"/>	System base power (MVA)
Sn	<input type="text" value="2220"/>	Power rating (MVA)
V_b	<input type="text" value="400"/>	Sending end bus voltage (kV)
Vn	<input type="text" value="400"/>	Voltage rating (kV)
fn	<input type="text" value="SysData.fn"/>	Frequency rating (Hz)

Transformer parameters

kT	<input type="text" value="1"/>	Nominal tap ratio (kV1/kV2)
x	<input type="text" value="0.15"/>	Reactance (pu machine base)
r	<input type="text" value="0"/>	Resistance (pu machine base)

OK Cancel

Sysdata:

Parameters

General Modifiers

Component
Name: SysData

Class
Path: OpenIPSL.Electrical.SystemBase
Comment: System Base Definition

Parameters

S_b	<input type="text" value="100"/>	MVA System base
fn	<input type="text" value="50"/>	Hz System Frequency

OK Cancel

Power lines data:

OMEdit - Component Parameters - pwLine1 in SMIB_Controlled.Network

Parameters

General Modifiers

Component
Name: pwLine1

Class
Path: OpenIPSL.Electrical.Branches.PwLine
Comment: Model for a transmission Line based on the pi-equivalent circuit

Parameters
displayPF Display power flow results:

Line parameters

R	<input type="text" value="0"/>	1	Resistance (pu)
X	<input type="text" value="0.022522522522523"/>	1	Reactance (pu)
G	<input type="text" value="0"/>	1	Shunt half conductance (pu)
B	<input type="text" value="0"/>	1	Shunt half susceptance (pu)
S_b	<input type="text" value="100"/>	MVA	System base power (MVA)

Perturbation parameters

t1	<input type="text" value="Modelica.Constants.inf"/>	s
t2	<input type="text" value="Modelica.Constants.inf"/>	s
opening	<input type="text" value="1"/>	

OK Cancel

OMEdit - Component Parameters - pwLine2 in SMIB_Controlled.Network

Parameters

General Modifiers

Component
Name: pwLine2

Class
Path: OpenIPSL.Electrical.Branches.PwLine
Comment: Model for a transmission Line based on the pi-equivalent circuit

Parameters
displayPF Display power flow results:

Line parameters

R	<input type="text" value="0"/>	1	Resistance (pu)
X	<input type="text" value="0.041891891891892"/>	1	Reactance (pu)
G	<input type="text" value="0"/>	1	Shunt half conductance (pu)
B	<input type="text" value="0"/>	1	Shunt half susceptance (pu)
S_b	<input type="text" value="100"/>	MVA	System base power (MVA)

Perturbation parameters

t1	<input type="text" value="Modelica.Constants.inf"/>	s
t2	<input type="text" value="Modelica.Constants.inf"/>	s
opening	<input type="text" value="1"/>	

OK Cancel

Generator data:

OMEdit - Component Parameters - order61 in SMIB_Controlled.Generator

Parameters

General Modifiers

Component
Name: order61

Class
Path: OpenIPSL.Electrical.Machines.PSAT.Order6
Comment:

Initialization

e1q.start	<input checked="" type="checkbox"/>	e1q0	q-axis transient voltage
e1d.start	<input type="checkbox"/>	e1d0	d-axis transient voltage
e2q.start	<input checked="" type="checkbox"/>	e2q0	q-axis sub-transient voltage
e2d.start	<input type="checkbox"/>	e2d0	d-axis sub-transient voltage
delta.start	<input type="checkbox"/>	delta0	rad Rotor angle (rad)
w.start	<input type="checkbox"/>	1	Rotor speed (pu)
v.start	<input type="checkbox"/>	V_0	Generator terminal voltage (pu)
P.start	<input type="checkbox"/>	p0	Active power (pu)
Q.start	<input type="checkbox"/>	q0	Reactive power (pu)
vf.start	<input type="checkbox"/>	vf00	Field voltage (pu)
pm0.start	<input type="checkbox"/>	pm00	Initial mechanical power (pu)
pm.start	<input type="checkbox"/>	pm00	Mechanical power (pu)
anglev.start	<input type="checkbox"/>	SI.Conversions.from_deg(angle_0)	deg Bus voltage angle (rad)

OK Cancel

OMEdit - Component Parameters - order61 in SMIB_Controlled.Generator

Parameters

General Modifiers

anglev.start	<input type="checkbox"/>	SI.Conversions.from_deg(angle_0)	deg	Bus voltage angle (rad)
vd.start	<input type="checkbox"/>	vd0		d-axis voltage (pu)
vq.start	<input type="checkbox"/>	vq0		q-axis voltage (pu)
id.start	<input type="checkbox"/>	id0		d-axis current (pu)
iq.start	<input type="checkbox"/>	iq0		q-axis current (pu)

Power flow data

V_b	400	kV	Base voltage of the bus
V_0	1	1	Voltage magnitude (pu)
angle_0	$0.494677176989154 * 180 * 7 / 22$	deg	Voltage angle
P_0	1997.9999999936396	MW	Active power
Q_0	967.9249699065775	Mvar	Reactive power
S_b	SysData.S_b	MVA	System base power
fn	SysData.fn	Hz	System Frequency

Machine parameters

xd	1.9	d-axis synchronous reactance (pu)
xq	1.7	q-axis synchronous reactance (pu)
x1q	0.5	q-axis transient reactance (pu)
x2d	0.204	d-axis sub-transient reactance (pu)
x2q	0.3	q-axis sub-transient reactance (pu)

OK Cancel

Parameters

General

Modifiers

S_b	<input type="text" value="SysData.S_b"/>	MVA	System base power
fn	<input type="text" value="SysData.fn"/>	Hz	System Frequency

Machine parameters

xd	<input type="text" value="1.9"/>		d-axis synchronous reactance (pu)
xq	<input type="text" value="1.7"/>		q-axis synchronous reactance (pu)
x1q	<input type="text" value="0.5"/>		q-axis transient reactance (pu)
x2d	<input type="text" value="0.204"/>		d-axis sub-transient reactance (pu)
x2q	<input type="text" value="0.3"/>		q-axis sub-transient reactance (pu)
T1d0	<input type="text" value="8"/>		d-axis open circuit transient time constant (s)
T1q0	<input type="text" value="0.8"/>		q-axis open circuit transient time constant (s)
T2d0	<input type="text" value="0.04"/>		d-axis open circuit transient time constant (s)
T2q0	<input type="text" value="0.02"/>		q-axis open circuit transient time constant (s)
Taa	<input type="text" value="2e-3"/>		d-axis additional leakage time constant (s)
Sn	<input type="text" value="2220"/>	MVA	Power rating (MVA)
Vn	<input type="text" value="400"/>	kV	Voltage rating (kV)
ra	<input type="text" value="0.003"/>	1	Armature resistance (pu)
x1d	<input type="text" value="0.3"/>	1	d-axis transient reactance (pu)
M	<input type="text" value="7"/>		Mechanical starting time (2H), kW/s/kVA
D	<input type="text" value="0"/>		Damping coefficient

Three phase balanced fault block:

General

Modifiers

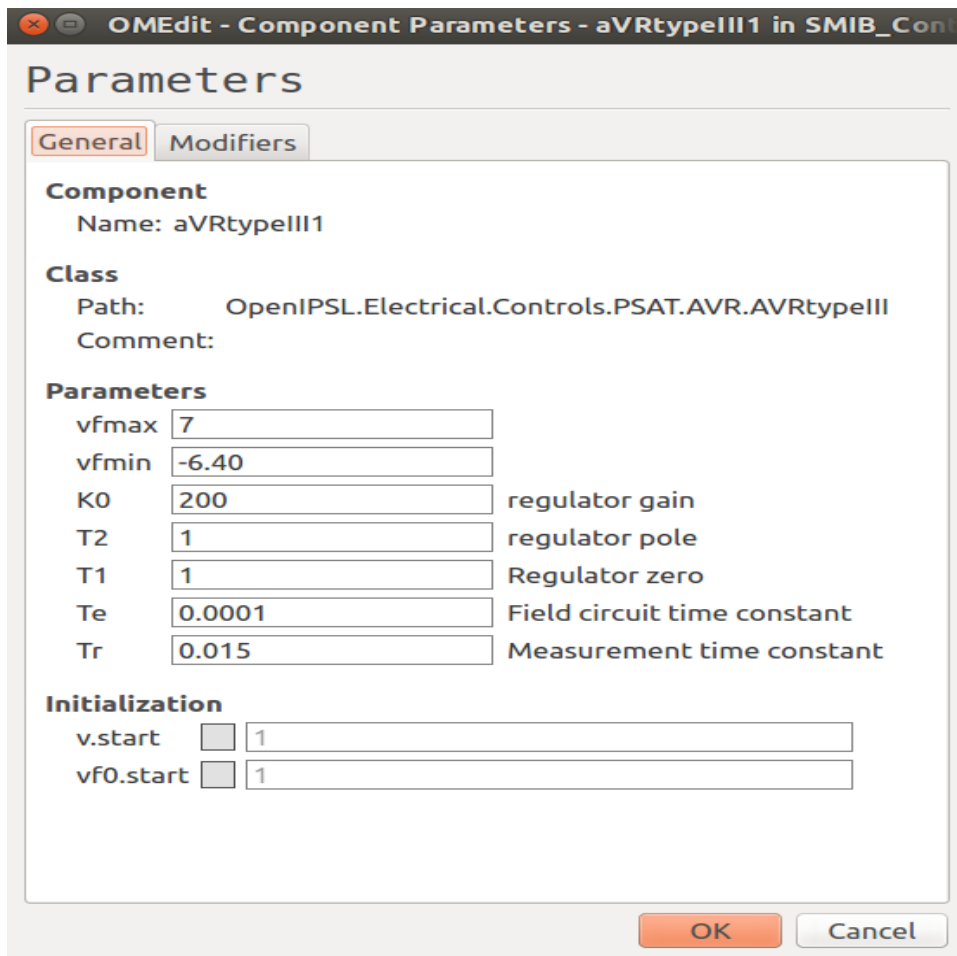
Component
Name: pwFault1

Class
Path: OpenIPSL.Electrical.Events.PwFault
Comment: Transitory short-circuit on a node. Shunt impedance connected only during a specified interval of time. Developed by AIA. 2014/12/16

Parameters

R	<input type="text" value="0"/>		Resistance (pu)
X	<input type="text" value="0.0004504504504504504"/>		Reactance (pu)
t1	<input type="text" value="0.5"/>		Start time of the fault (s)
t2	<input type="text" value="0.57"/>		End time of the fault (s)

AVR data:



Parameters

General | Modifiers

Component
Name: aVRtypeIII1

Class
Path: OpenIPSL.Electrical.Controls.PSAT.AVR.AVRtypeIII
Comment:

Parameters

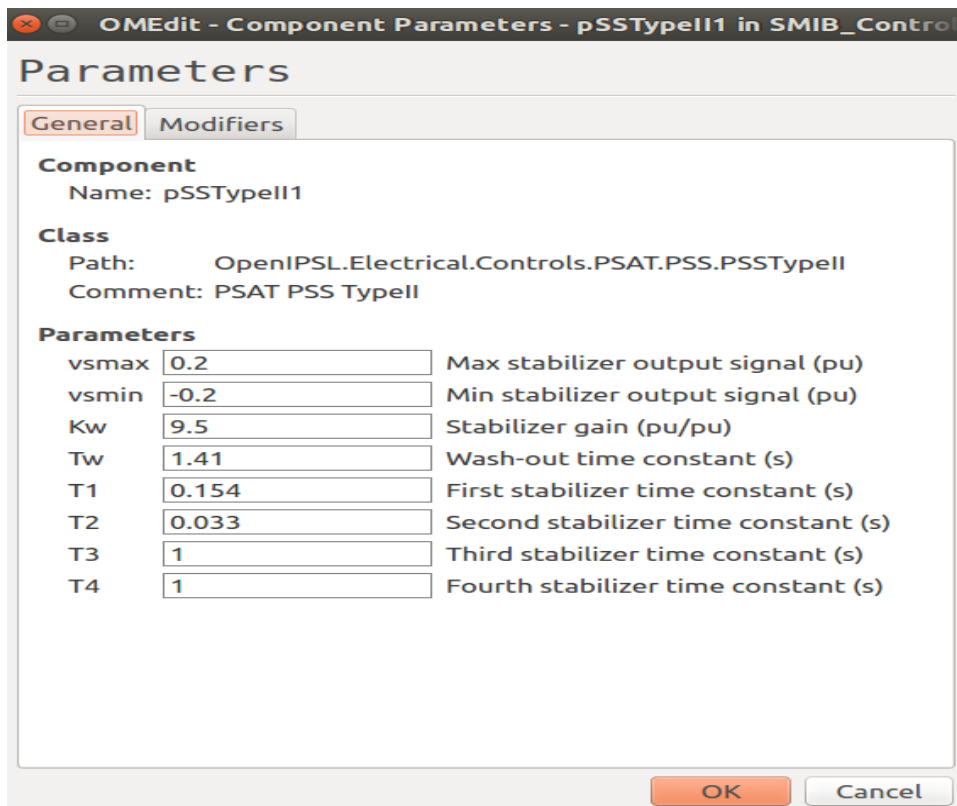
vfmax	7	
vfmin	-6.40	
K0	200	regulator gain
T2	1	regulator pole
T1	1	Regulator zero
Te	0.0001	Field circuit time constant
Tr	0.015	Measurement time constant

Initialization

v.start	<input type="checkbox"/>	1
vf0.start	<input type="checkbox"/>	1

OK Cancel

PSS data:



Parameters

General | Modifiers

Component
Name: pSSTypeII1

Class
Path: OpenIPSL.Electrical.Controls.PSAT.PSS.PSSTypeII
Comment: PSAT PSS TypeII

Parameters

vsmax	0.2	Max stabilizer output signal (pu)
vsmin	-0.2	Min stabilizer output signal (pu)
Kw	9.5	Stabilizer gain (pu/pu)
Tw	1.41	Wash-out time constant (s)
T1	0.154	First stabilizer time constant (s)
T2	0.033	Second stabilizer time constant (s)
T3	1	Third stabilizer time constant (s)
T4	1	Fourth stabilizer time constant (s)

OK Cancel